SERVICE MANUAL

(without price)

ELECTRONIC CASH REGISTER

SA-5000 (EX-955)

SA-5100 (EX-956)

JUNE 1997

INDEX

CASIO®

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1. FEATURES

1.1 System Features

Feature	Standard (specifications)	Option
Processor	AMD 5X86 133MHz	N/A
BIOS	AMI	N/A
Memory	• 4MB DRAM (expandable to 32MB) with two 72-pin SIMM sockets • 32KB non-volatile memory (expandable to 128KB)	N/A
Expansion Slots	two 16-bit ISA or one 16-bit ISA and 1 PCI	N/A
RS232C Ports (with power output)	4 Internal and 4 External (2 with 5V or 12V)	N/A
Parallel Ports	1	N/A
Floppy Disk	1.44MB	N/A
Hard Disk Interface	enhanced IDE	N/A
3.5"" Hard Disk	1	N/A
Operator Display	• 9.4" Mono VGA LCD or • 10.4" color VGA LCD with 512KB video memory expandable to 1MB	N/A
Customer Display		• 1x11 numeric VFD display or • 2x20 alpha numeric display (5.5mm or 10.5mm)
Keyboard	90-key POS keyboard	N/A
Electronic Keylock	8 positions	N/A
Cash Drawer	2 ports with individual sensing	N/A
Magnetic Card Reader	dual track (track 1 & 2)	1, 2 or 3 tracks ISO
OS Supported	MS DOS, Windows	
Power Supply	110VAC / 220VAC (165W)	
Environment Temperature	5 to 35 degree C	N/A
POS Printer	• 1-station receipt / journal dot matrix • 1-station receipt / journal thermal	
Packaging	recycled textured feel moulded plastic	N/A
Software Utilities	keyboard remap, BIOS or system setup	
Communications	Ethernet 10 Base-T (IEEE 802.3 Ethernet standard)	N/A
Dimensions w/o Cash Drawer	430mm (W) x 555mm (L) x 340mm (H)	N/A
Ext PC Keyboard Port/Barcode Reader Port	1	
External VGA Port	1	

Table 1.1

Note: N/A is short for Not Available.

1.2 System Overview

Below are 2 views of the system.

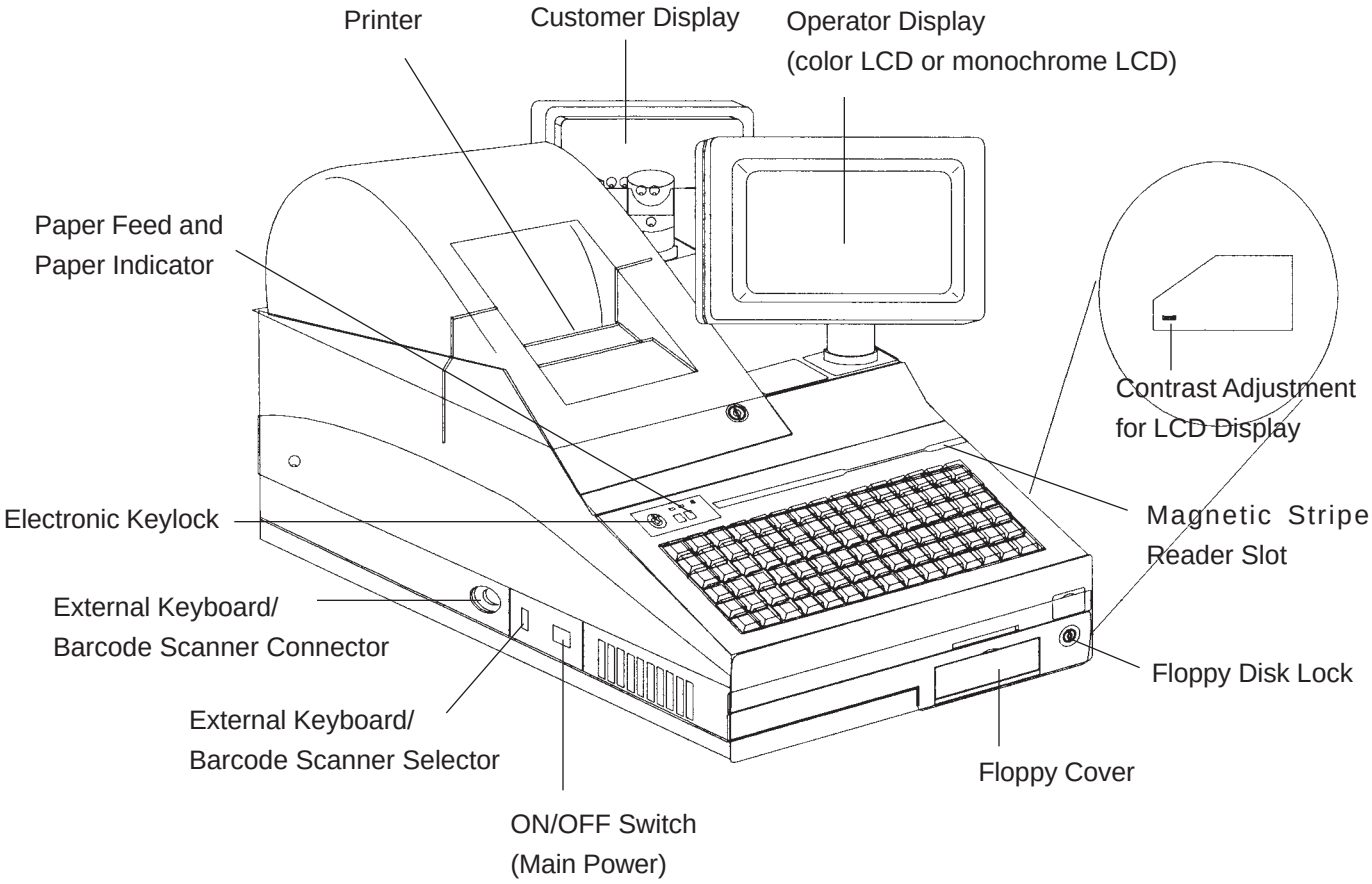


Figure 1.1 Isometric View

Accessories

1) Journal spooler
2) Roll paper spndle
3) Roll paper
4) Printer ribbon (SA-5000 only)
5) Mode key (3 type x 2 set)
6) Printer cover / FDD cover key
7) Note clip

BACK VIEW

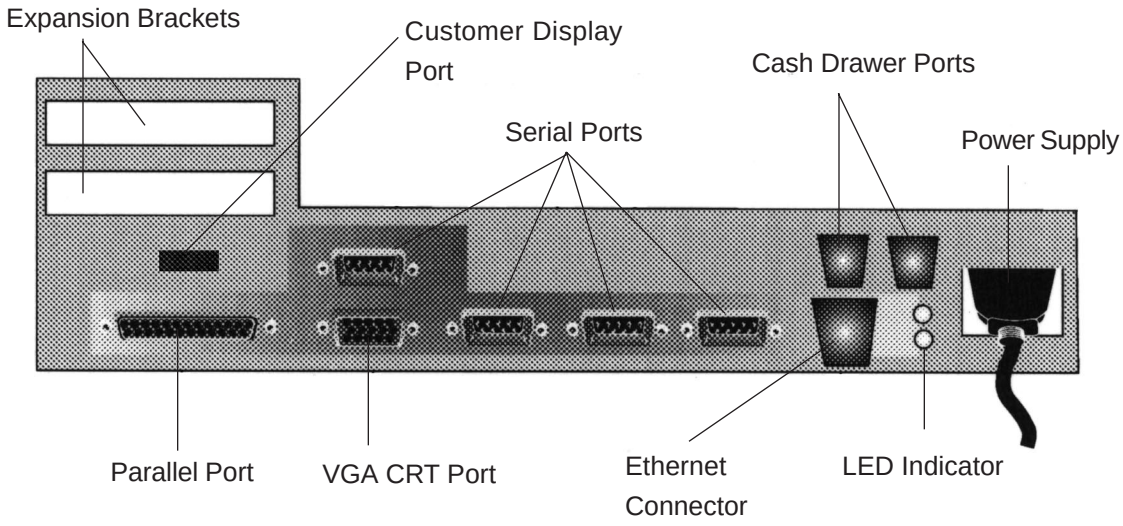
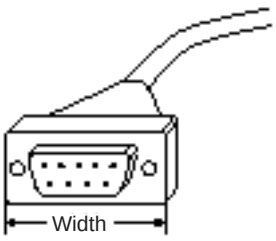


Figure 1-2

Figure 1-1 gives an isometric view of the system. On the front, the Floppy Disk Drive cover can be locked up with a keylock.
The receipt printer is under the printer cover while the Customer Display is behind the Operator Display which is a LCD display.
On the left side, the Power On/Off switch is hidden by a plastic cover which also hide the External Input Device slide switch for either PC AT keyboard or Bar Code Scanner. The connection port is hidden by a rubber plug. On the right side, there is the contrast dial knob for the contrast function of the LCD panel.

Figure 1-2 gives the rear view. With the rear plastic cover removed, the connectors are revealed. The 25-pin D-Sub connector for the parallel port is on the extreme left while the 3-pin plug for AC power supply is on the extreme right.
From left to right, the 15-pin D-sub VGA connector for CRT connection, three 9-pin D-sub connector, 2 RJ-11 connec-tors, which are part of the Printer Controller board, for Cash Drawers and RJ-45 connector for Ethernet can be seen.
Above the row of these connectors is the 2x5 2mm connector for the Customer Display and another 9-pin D-sub connector for the serial port.

Note: Due to physical construction, there is limitation in width of the RS-232C connector.
Maximum width is 28.0 mm. Most of ready-made cables in the market are applicable.



1-3. System Description

1-3-1. Motherboard

Memory	2 x 72-pin SIMM sockets. STD. : 4MB Max. 32MB of DRAM.
Non-Volatile RAM	The NVRAM can be used to store transactions and data for backup purpose. STD : 32KB MAX.: 128KB
Internal Ports	Ports for interfacing the internal POS devices reside on the motherboard. The interfaces are for the POS printer, operator and 2x20 customer displays and the Keyboard Controller Board. The Keyboard controller Board contains the interfaces for the Magnet Stripe Reader and the 1x11 numeric customer display.
External Ports	Ports for interfacing the external devices reside on the motherboard and are accessible through the rear panel. 1 x Parallel port 4 x RS232C ports - two of which provide +5V and +12V, 2 x Cash drawer ports with individual sensor 1 x VGA CRT port 1 x Ethernet 10 base-T port 1 x external keyboard or a Bar Code Reader port
Expansion Slots	2 x ISA slots or 1 x ISA slot and 1 x PCI slot The length of add-on cards should not exceed 200 mm.
VGA Video System	The video controller is on the motherboard to support VGA LCD displays. 9.5” monochrome LCDor 10.4” Color DSTN LCD The LCD panel can be rotated, tilted or slid horizontally. The SA-5000 mounts the monochrome video BIOS ROM and the SA-5100 mounts the colour video BIOS ROM as standard. For flexible system configuration, monochrome or colour LCD display is available for both models by switching video BIOS ROM and jumper setting on the motherboard (JP31, JP46). The video system also supports VGA CRT monitor. Automatic frequency detection type CRT is recommended. (Horizontal frequency is about 25KHz)
BIOS	BIOS : AMI (American Megatrends Incorporated) The following is a list of modifications which were made to the standard BIOS. 1. System Setup 2. Chipset Setup 3. Support for 8 serial ports 4. System Self Test 5. Power Restore/Backup

1-3-2. Customer Displays

The system offers two choices of customer display.

Alphanumeric VFD 2 X 20	The character height : 10.5mm (SA-5062DH) or 5.5mm (SA-5061D). The display has a RS232C serial interface and is connected to the 9-pin D-sub connector on the rear bracket at the rear of the housing.
Numeric VFD 1 x 11	Thecharacter height is 11 mm (SA-5060N). The display has two connectors to be connected to the connectors on the keyboard controller board inside of the unit, underneath the keyboard. Open one of ISA expansion slot on the rear bracket and thread the cables into the unit.

1-3-3. Operator Displays

SA-5002C	VGA color LCD flat panel display
SA-5001M	VGA monochrome LCD flat panel display

1-3-4. Keyboard

The keyboard contains 90 keys which can be re-labelled to support double wide, double high and quad keys.
The scancodes are programmable. An alternative flat membrane water resistance keyboard with 120 keys is available.

1-3-5. Manager's Electronic Keylock

The system contains a 8-position manager's keylock.

1-3-6. Magnetic Stripe Reader

The MSR input is similar to a keyboard input.
2 tracks (track 1 and 2) is standard, 3 tracks (track 1 , 2 and 3) is optional.

1-3-7. Printers

The system housing is designed to accommodate different printer mechanisms with different covers as indicated in the table below.

Model	Type of Printer	Printer Mechanism
SA-5000	Single Station Dot Matrix	Citizen-614 with validation
SA-5100	Single Station Thermal	Citizen-380

1-3-8. Cash Drawers

The system can support up to two cash drawers.

1-3-9. Ethernet

The system provides a 10Mbps connectivity to a Local Area Network complying with the IEEE802.3 Ethernet standard.
The Ethernet controller adopts a Bus-Master approach for maximum throughput on the ISA bus.
Driver information need to be specified.

1-3-10. Floppy Disk Drive

The system supports one 1.44 MB floppy disk drive which can be locked up with a mechanical keylock.

1-3-11. Hard Disk Drive

The system supports up to 2 E-IDE hard disk drives.
Standard : 1 HDD mounted.

2. SPECIFICATIONS

2-1. SA-5000 / 5100 unit

Environment and Safety Specifications

	Specifications
Operating Temperature	5˚C — 35˚C
Operating Humidity	20% to 90% Non Cond. RH
Storage Temperature	-10˚C — 80˚C
EMI	FCC Class A CE Mark
Safety & ESD	cUL1950, GS CE Mark
Power Supply	110VAC, 60Hz, 165W 220VAC, 50Hz, 165W

2-2. SA-5001C / SA-5002M (Operator LCD Display)

Model	LCD Name	LCD Life time	Remark
SA-5001M	LM64183P	10,000 hours or more	Monochrome
SA-5002C	LM64C55	10,000 hours or more	Color

Note : Life time conditions

Operating tempurature : 25 ±5°C (Monochrome), 25 ±1°C (Color)

Brightness value : Became 50% of the initial value

2-3. HDD

Model	MTBF
ST3850A	300,000 hours or 40,000 contacts

2-4. FDD

Model	MTBF	Device life
MF355F-3	80,000 hours	5 years or 20,000 hours

2-5. MCR (2 track)

Model	MTBF
ZU-M1241S1	300,000 pass

2-6. Printer

SA-5000

Printer model	DP-614
Printing specification	Print method : Impact dot matrix Print direction : Bi-directional Printing speed : 3 lines / sec. Dot number of width : 360 dots / line (includ half dot) Number of columns : 40 columns Character dots : 7 dots x 9 dots Character spacing : 2 dots
Paper feed	Paper feed method : Friction feed Line spacing : 1/6 inch (4.23mm) Line speed : Fast feed : 18 lines / sec. Normal feed : 9 lines / sec.
Paper	Paper width : 76 ± 0.5mm Paper diameter : Less than 80mm Paper type : Normal and no-carbonic Paper thickness : Nomal paper : 0.06 - 0.09 mm Copy paper : 0.05 - 0.08 mm combination (No-cabonic) Original 1 + copy 1 : Less than 0.14mm
Reliability	MCBF : 4,000,000 lines Head life : 80,000,000 characters Ink ribbon life : 2,600,000 characters (Black)

SA-5100

Printer model	LT-380
Printing specification	Print method : Thermal line dot method Total number of dots : 576 dots / line Dot density : 8 dots / mm Printing width : 72mm Printing speed : Max. 500 dots / sec. Character column numbers and dots :

Dots of font	Column numbers
8 x 16	72
16 x 16	36
12 x 24	48
24 x 24	24

Paper feed	Low speed : 250 dots line / sec. High speed : 500 dots line / sec.
Paper	Paper width : 80mm (+0 , -1) Paper type : Thermal paper
Reliability	Head life : At least 50,000,000 pulses (printing rate : 12.5%) or 30 km

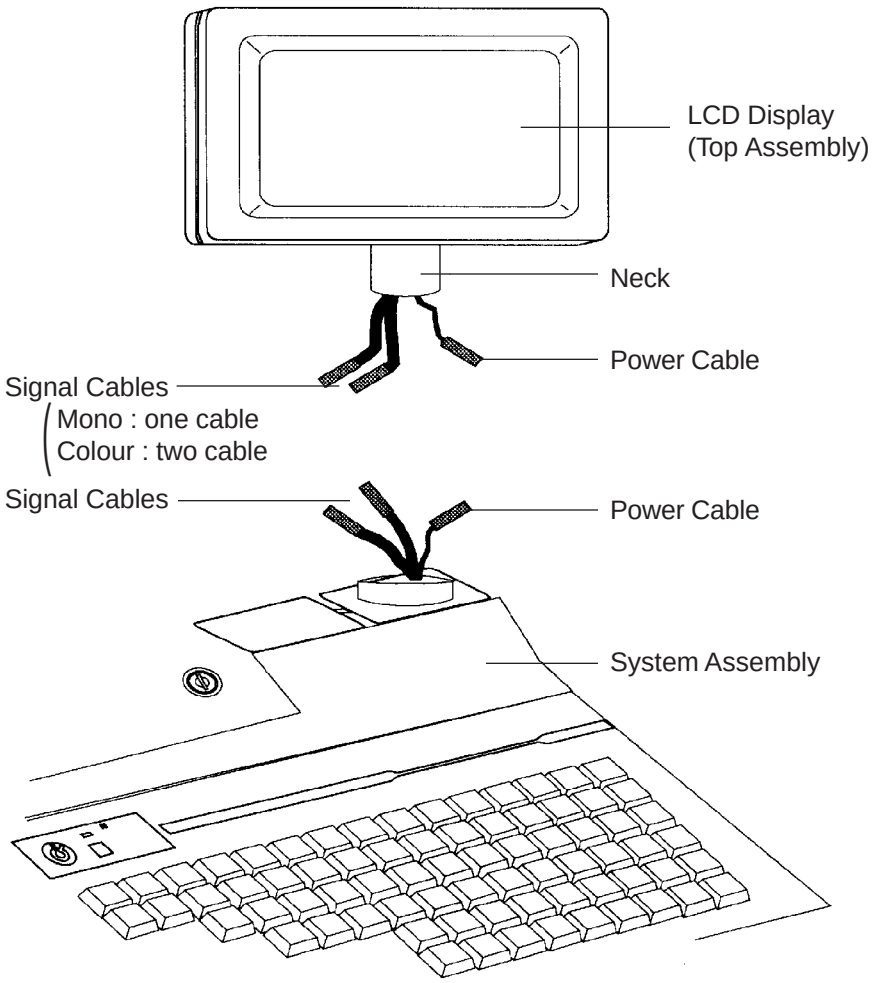
3. OPTION LIST

Device	Product Name	Description
Operator display	SA-5001M	9.4 inch Monochrome LCD display
	SA-5002C	10.4 inch Color LCD display
Customer display	SA-5060N	1x11 Numeric display
	SA-5061D	2x20 Alpha display (5.5mm hight)
	SA-5062DH	2x20 Alpha display (10.5mm hight)
Second Drawer		M-sized drawer with open sensor
Magnetic Card Reader	SA-5040MCR	3 track reader

4. OPTION INSTALLATION

4-1. Operator LCD display (SA-5001M, SA-5002C)

Note : Make sure that the power switch is turned off.



Installing LCD Display to System

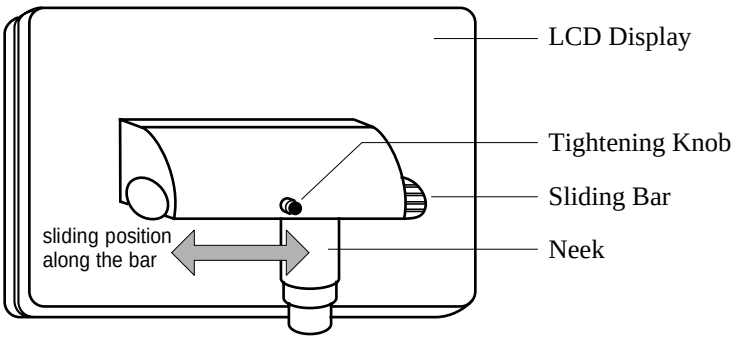
1. Connect the power cable protruding from the neck of the top assembly to the power cable of the system assembly.

2. Then connect the signal cables protruding from the neck of the top assembly to the signal cables of the system assembly.

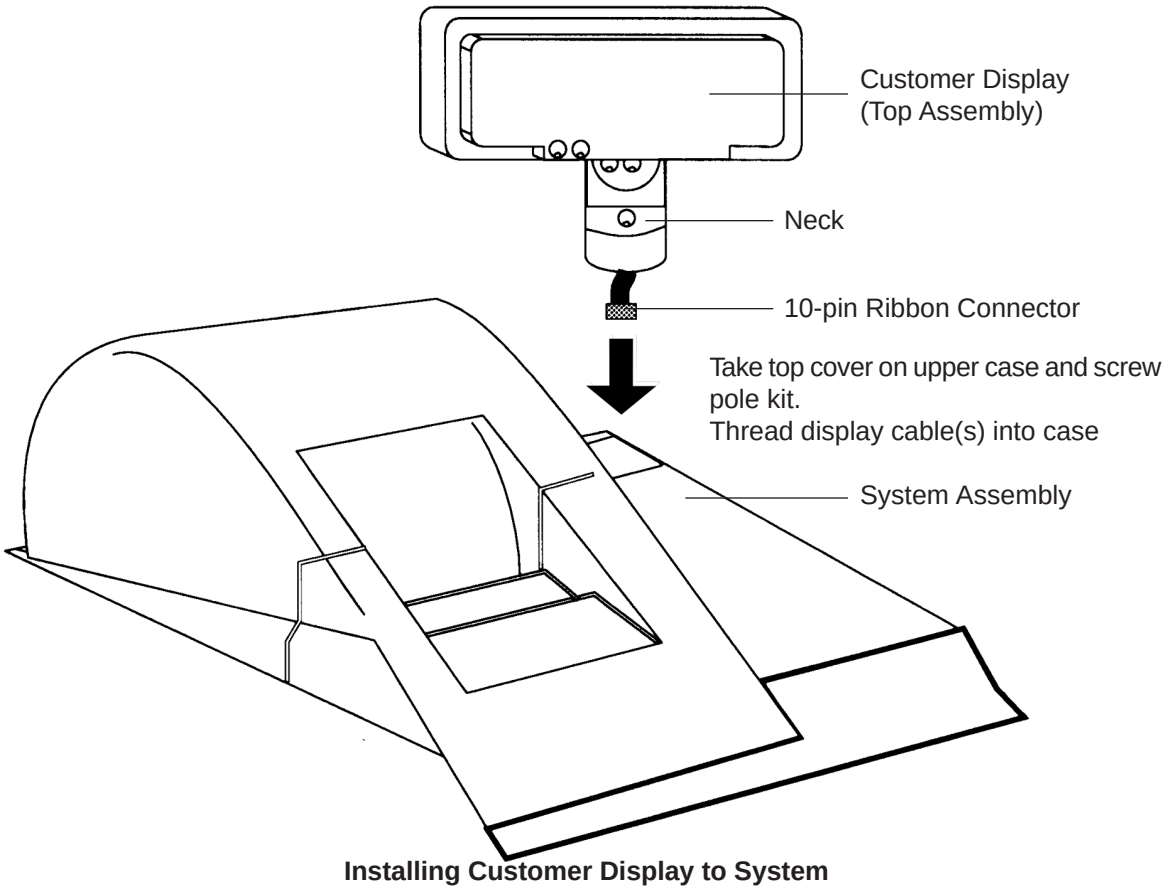
3. Finally, position the display unit such that the neck sits comfortably on the system assembly. Once the LCD panel is properly installed, it can no longer be detached from the system assembly.

4-2. Adjustment of LCD Display

The operator display can be easily adjusted for the operators viewing comfort.
The display unit can be tilted, swivelled and moved to the right or left.
The neck of the unit is built such that it allows tilting at different angles.
To move the display to the left or right, simply loosen the tightening knob situated at the back of the unit.
Then move the display along the sliding bar to the desired position before tightening the knob again.
To swivel, simply lift up the display and rotate to desired position.



4-3. Customer display (SA-5060N, SA-5061D, SA-5062DH)

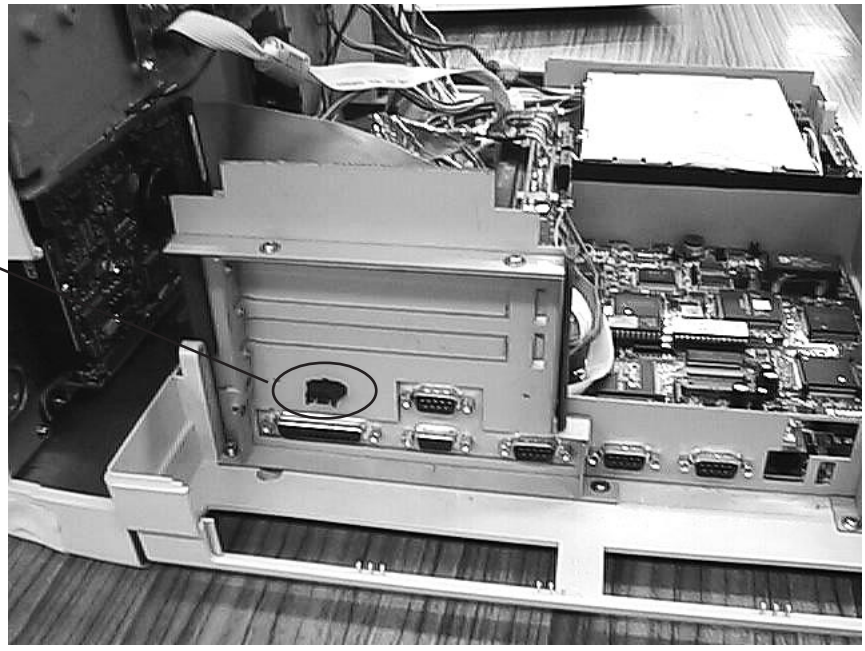


Installing Customer Display to System

1. Alphanumeric 2x20 type (SA-5061D, SA-5052DH)

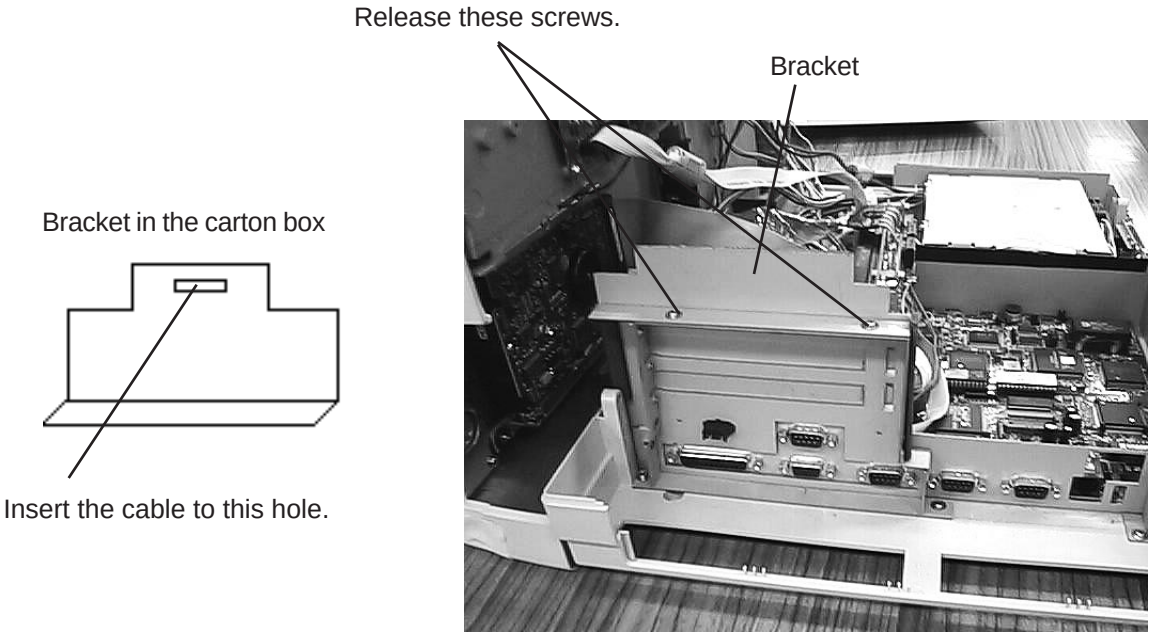
Connect the 10-pin ribbon cable to the 10-pin connecter on the rear panel.

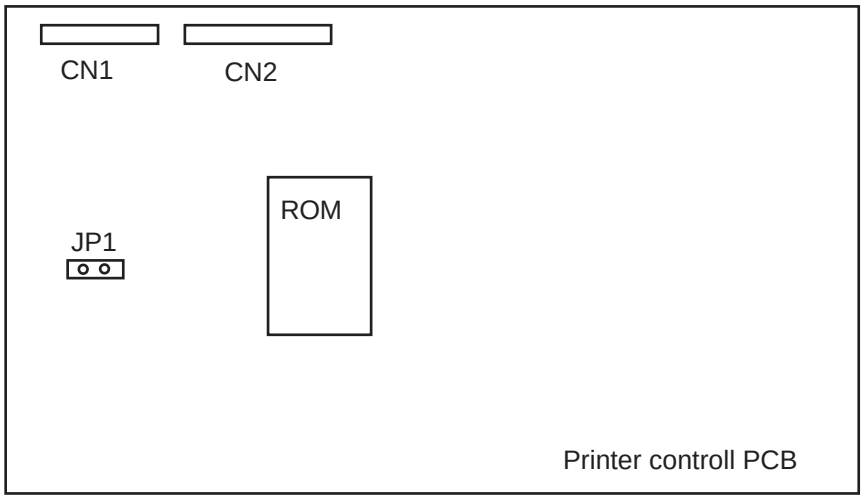
Connect here.



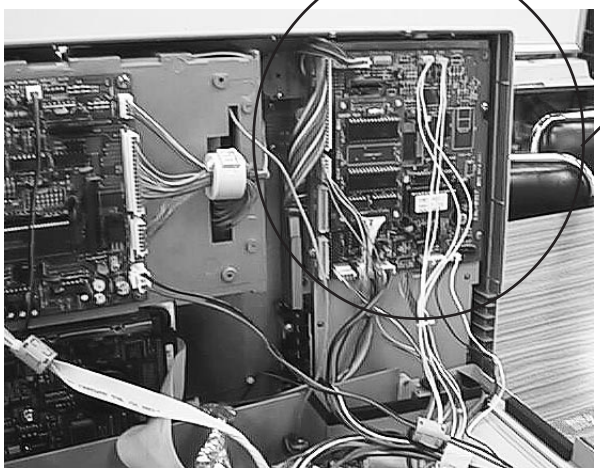
2. Numeric 1x11 type (SA-5060N)

1. Connect 2 pcs of expansion cable which is the SA-5060N carton box to SA-5060N.
2. Open the upper case and release the screw to fixing the bracket.
3. Change the bracket which is in the SA-5060N carton box and insert the cable to the hole.
4. Then, connect 2 pcs of expansion cable to the connector CN1,CN2 on the keyboard controll PCB.
5. Make short the jumper JP1 on the keyboard controll PCB using short pin which is mounted PCB.
   JP1 condition : Open : Not mounted SA-5060N Default
   Short : Mounted SA-5060N
6. Close the upper case.



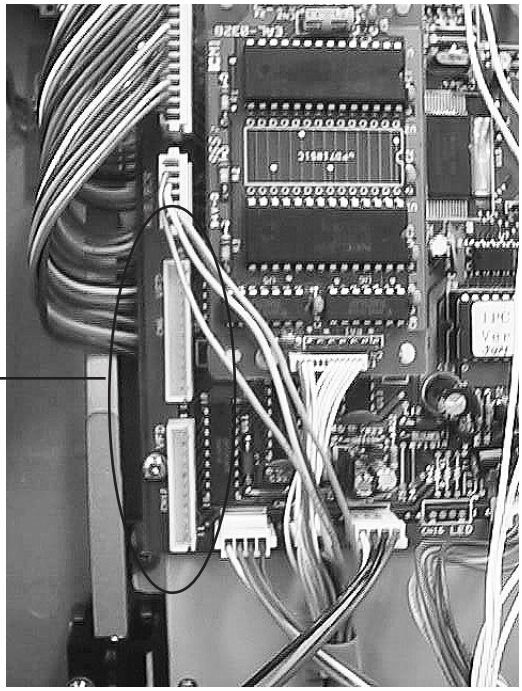


PCB LOCATION



Printer controll PCB

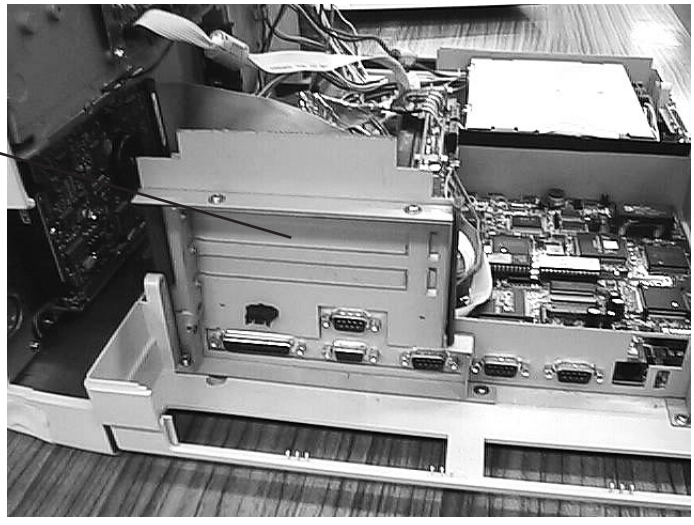
CONNECTOR LOCATION



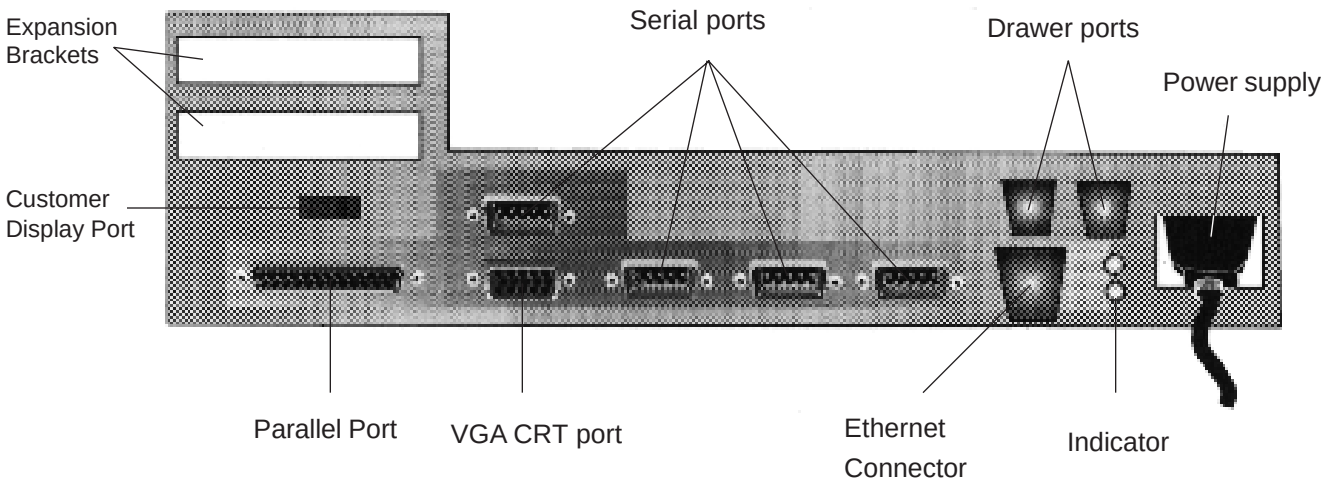
Connect 2 pcs of cable here.

Note : In case the SA-5060N has no replacement bracket in the carton, please remove the cover for expansion board.
Then, insert the cable this hole.

Remove this cover and insert 2 pcs of cable here.



4-4. Drawer



SYSTEM REAR VIEW

SA-5000/5100 have two cash drawer ports located at the rear of the system.
A maximum of two cash drawers can be connected to the system through these ports.
Note: Type of connector for the Ethernet port is similar to connector for the cash drawer.
Please confirm location carefully and connect the cash drawer.

4-5. Barcode Scanner/Reader (User option)

Connect the barcode scanner/reader 9-pin D-shell connector to the barcode scanner connector located at the left hand side of the terminal.
The selector next to the connector should be set to " S " position.
Ensure the barcode scanner/reader is the AT-keyboard connector type.

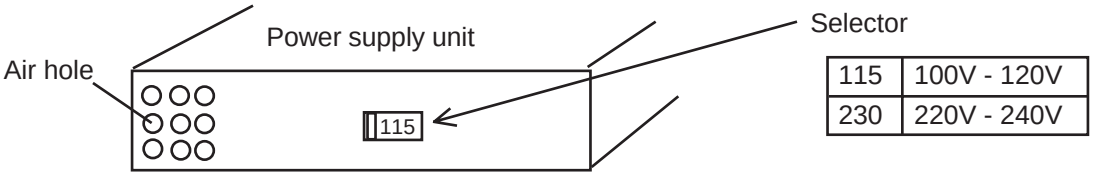
4-6. Ethernet

The connector used for Ethernet LAN is RJ45.

4-7. AC Voltage selection (110/220V Switch)

Important!
The power supply unit has a voltage selector and it is possible to adjust the input voltage level.

To adjust the voltage lebel, open the upper case and slide the selector to AC voltage position.



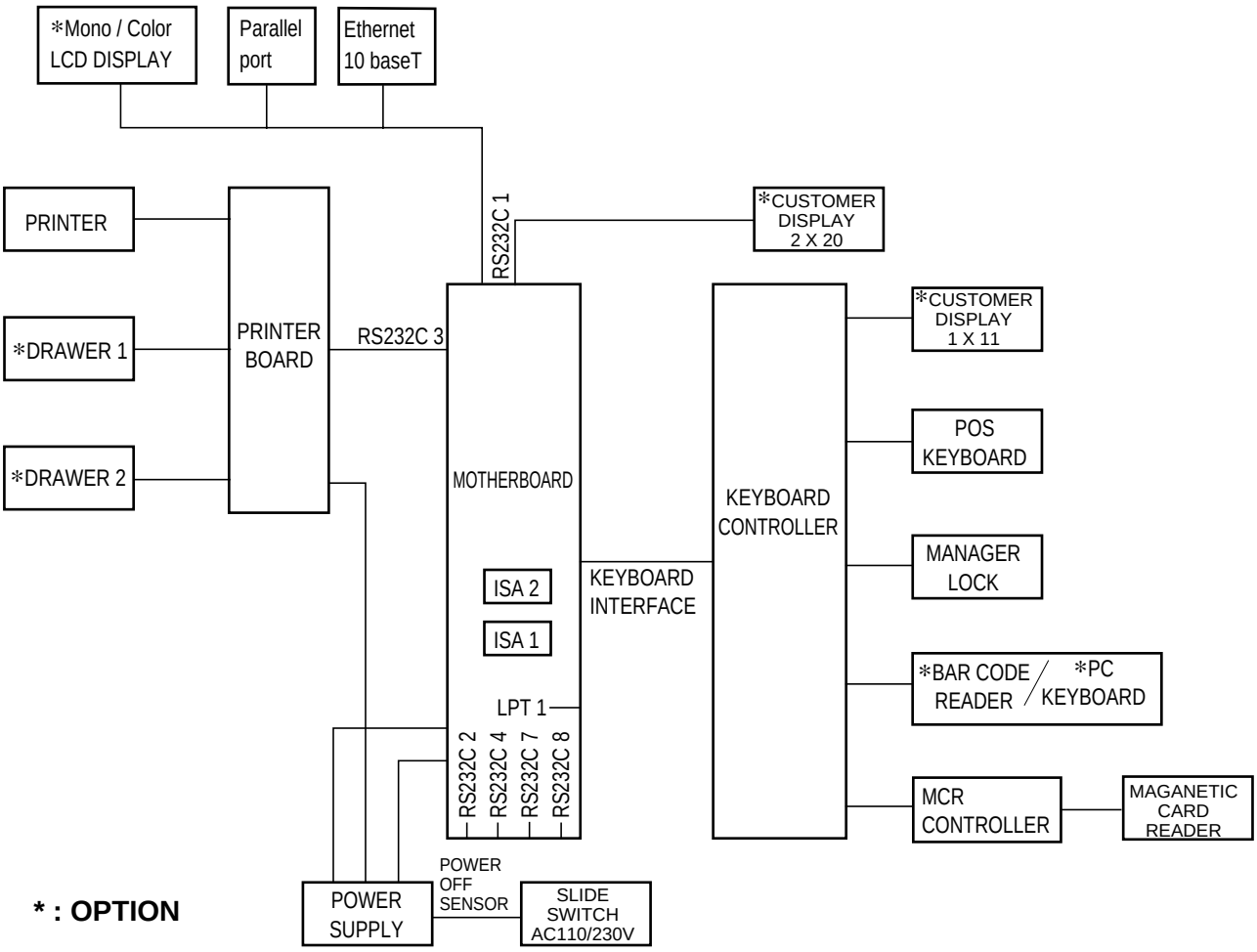
115	100V - 120V
230	220V - 240V

Connect AC power cord to the power supply connector securely.
L angled connector type AC cord is recommended to close back case cover securely.

Power-Up
The system is powered up upon switching on the On/off button.
The system will then perform the Power-On-Self-Test (POST).
After the POST is completed, the system will boot from the hard disk or the floppy disk.

5. CIRCUIT EXPLANATION

5-1. BLOCK DIAGRAM for SA-5000/5100



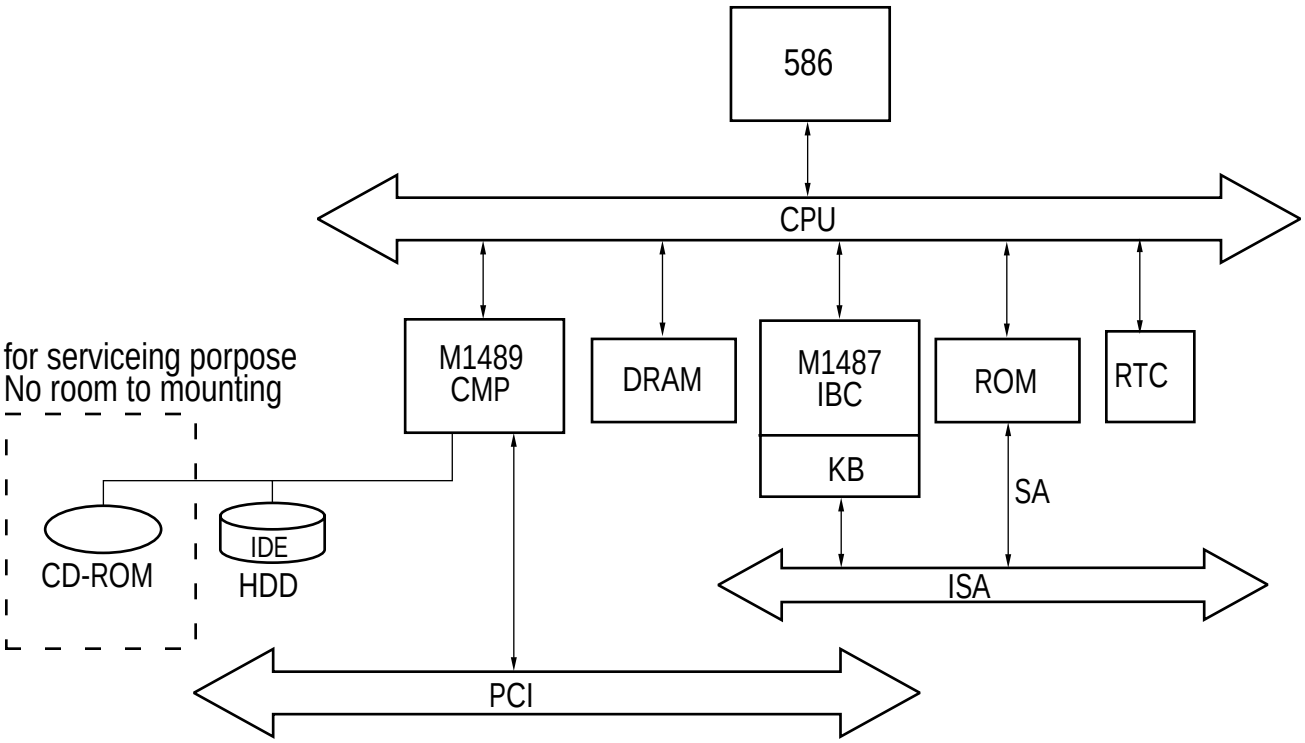
*** : OPTION**

Memory socket : 2 x 72 pin SIMM

Expansion socket : 2 x ISA slot (Card should be less than 200mm) or
1 x ISA slot and 1 x PCI slot

RS232C Port : RS232C port In the above fugure is mentioned internal port number.
It is possible to supply the power (+5V, +12V) on port 2 and 4.

5-2. Motherboard block diagram



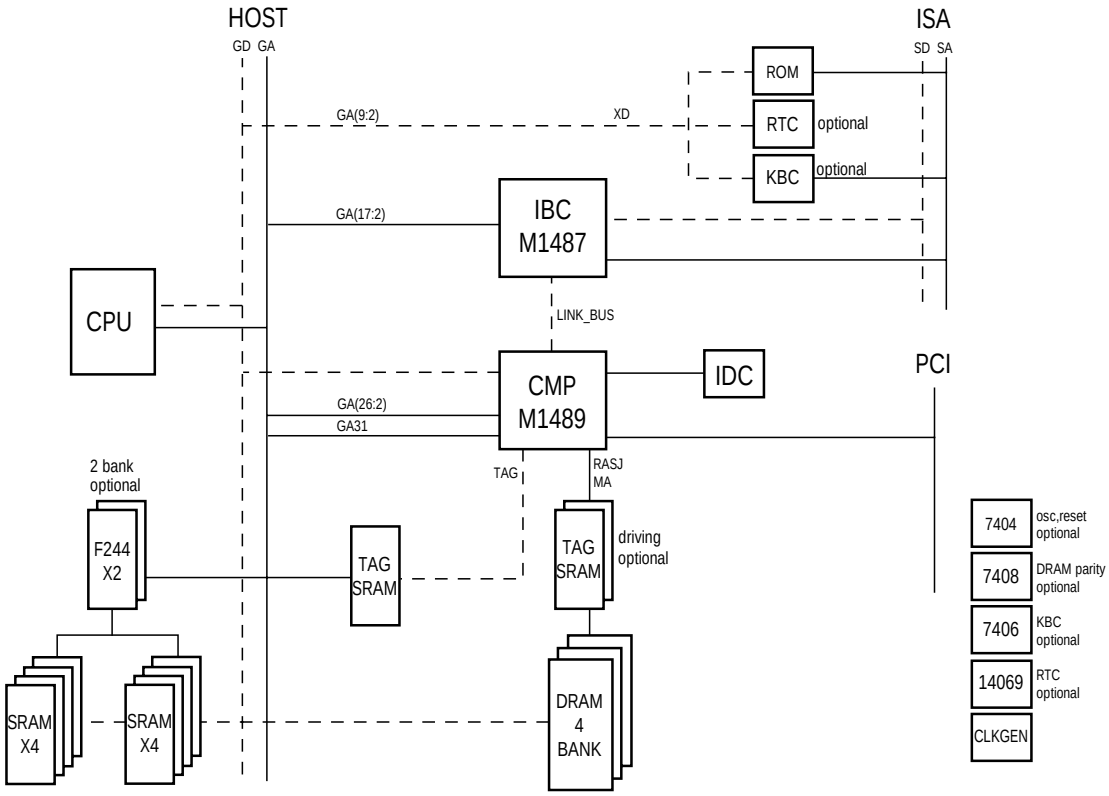
M1489 / M1487 System Block Diagram

M1489CMP : Controls cache memory and PCI bus

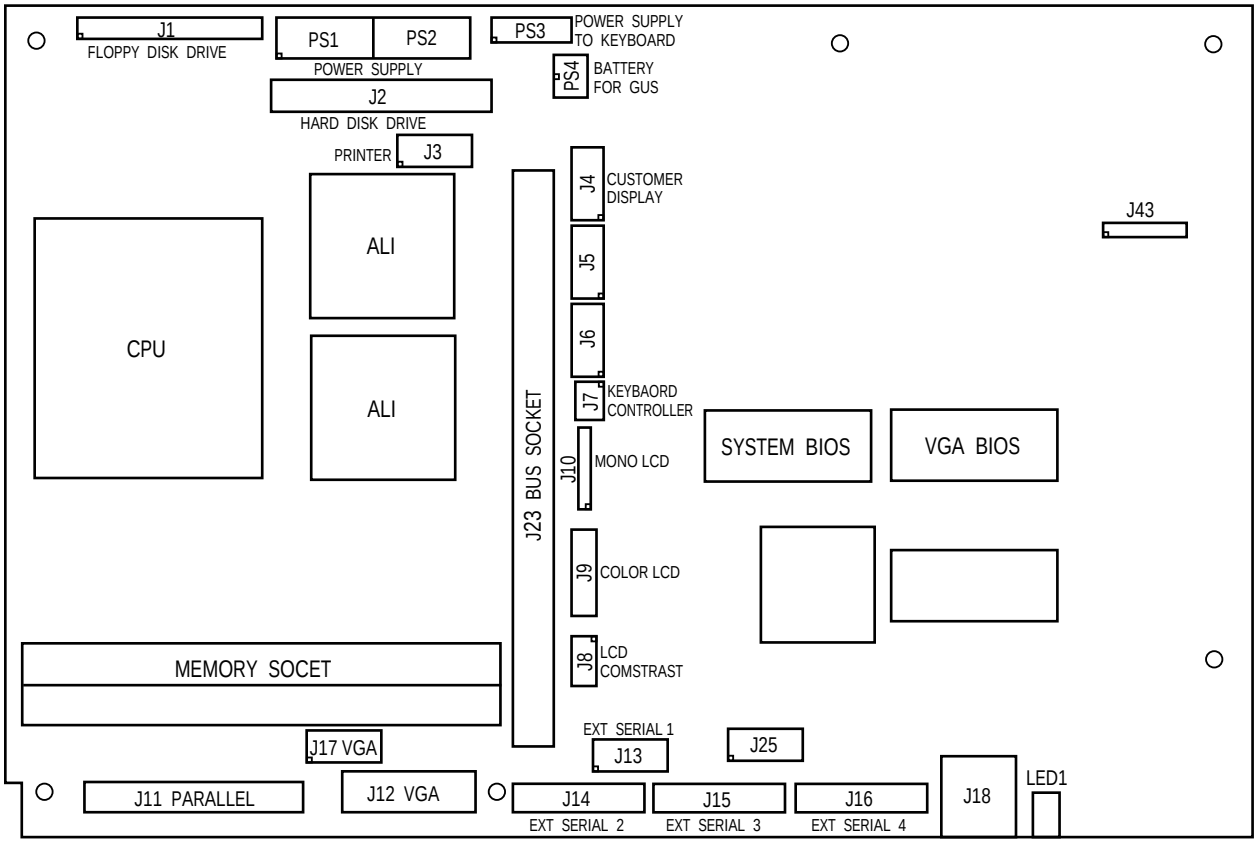
M1487IBC : ISA bus controller

RTC : Real time clock (Dallas DS12887A)

CD ROM : CD ROM is used for serviceing purpose. There is no room to mount the CD-ROM.



5-3. Motherboard Jumper and Connector position



5-4. Jumper Settings

Change the jumper settings for each type of CPU used according to the table below.

CPU TYPE SETTING									
JP	**486DX** F	**P24C**	**P24D**	**P24T**		**AMD+**		**AMD**	**5x86**
8	2-3	2-3	2-3	1-2		2-3		2-3	
9	Fit F	Fit F	Fit F	Fit F		Fit		Fit	
12	1-2	1-2	2-3	2-3		1-2		1-2	
19	N-F	N-F	2-3	N-F		2-3		2-3	
23	N-F	Fit	Fit	Fit		Fit		Fit	
36	1-2	3-4	3-4	3-4		3-4		1-2	
37	3-4	3-4	3-4	3-4		3-4		3-4	
38	3-4	3-4	3-4	3-4		3-4		3-4	
39	N-F	N-F	5-6	N-F		1-3, 5-6		1-3, 5-6	

:default

Fit = Fitted / N-F = Not Fitted / Default setting is marked by an AT-sign F /
JP9 Fitted for Write Thru, Not Fitted for Write Back / JP39 1-3 Fitted for 133 MHz

Select the clock frequencies according to the CPU speed according to the table below.

CPU CLOCK SETTING				
JP25 (S2)	**JP26 (S1)**	**JP27 (S0)**	**CPU CLOCK (MHz)**	**CPU CLOCK/2 (MHz)**
Fit	Fit	Fit	33.3	16.65
Fit	Fit		80	40
Fit		Fit	66.67	33.3
Fit			50	25
	Fit	Fit	40	20
	Fit		60	30
		Fit	25	12.5
			33.3 F	16.65 F

:default

JP	1-2	2-3	Description
1	for DS12887	for DS12887A	CMOS Reset (do not insert)
3	for GUS	for Mistoffelees	Power Switch Status Detection
4	INTEL CPU *	TI CPU	Backup Status
5	+5V	Ring Indicator	Int. Serial Port #3 Pin 9
10	+12V	Carrier Detect	Int. Serial Port #3 Pin 1
11	3.45V	3.3V	3.3V/3.45V CPU Volt Selection
14	32KB	16KF	NVRAM Page Size Selection
15	DS1650Y (512K)	DS1230Y/32K	NVRAM Type Selection
		DS1225Y/8K	Not fitted/Open for DS1245Y/128K
		DS1220Y/2K	
21	300H	100H	Base I/O Addr Sel. for Serial Port
28	PCI Clk=CPU Clk	PCI Clk=CPU Clk/2	PCI Clock Selection
30	-VEE	+VEE	VEE Selection: Sharp LM64183P
31	Color LCD Panel	Monochr. LCD Panel	VCON(Contrast Volt) Selection
32	+5V	Ring Indicator	Ext. Serial Port #2 Pin 9
35	+12V	Carrier Detect	Ext. Serial Port #2 Pin 1
34	+5V	Ring Indicator	Ext. Serial Port #1 Pin 9
33	+12V	Carrier Detect	Ext. Serial Port #1 Pin 1

:default

JP	Open/Not fitted	Close/Fitted	Description
2	default	Reset	Momentarily
6	default	Bypass Speaker	Speaker Connection
7	3.3V/3.45V CPU	5V CPU	
16	PCI Clk=CPU Clk	PCI Clk=CPU Clk/2	
40	Disable	Enable	Video Test Mode Selection
41	Disable	Enable	2 X CPU Clk Select for VGA
42	Disable	Enable	Ethernet Boot ROM Selection

:default

JP	Mono LCD	Colour LCD
46	1-2	2-3
47	1-2	1-2

The table below shows a summary of all jumper description.

JP	PINS	WHAT FOR
1	3	CMOS Reset (not to be inserted)
2	2	System Reset (not to be inserted)
3	3	Power Switch Status Detection
4	3	Backup Status
5	3	Internal Serial Port #3 - pin 1 & pin 9 selection (5V)
6	2	Speaker Bypass
7	2	CPU Voltage Selection
8	3	CPU Type Selection
9	2	CPU Type Setting - AMD or Others
10	3	Internal Serial Port #3 - pin 1 & pin 9 selection (12V)
11	3	3.3V/3.45V CPU Voltage Selection
12	3	CPU Type Selection
13	X	
14	3	NVRAM Page Size Selection
15	3	NVRAM Type Selection
16	2	PCI Clock Selection
17	X	
18	X	
19	3	CPU Type Selection
20	X	
21	3	Base I/O Address Selection for Serial Port Decoding
22	X	
23	3	CPU Type Selection
24	3	Non-volatile DRAM on SIMM
25	2	CPU Clock Setting
26	2	CPU Clock Setting
27	2	CPU Clock Setting
28	3	PCI Clock Selection
29	3	Non-volatile DRAM on SIMM
30	3	VEE Selection for Mono LCD Panel
31	3	VCON (Contrast Voltage for LCD panel) Selection
32	3	External Serial Port #2 - pin 1 & pin 9 Selection (5V)
33	3	External Serial Port #1 - pin 1 & pin 9 Selection (12V)
34	3	External Serial Port #1 - pin 1 & pin 9 Selection (5V)
35	3	External Serial Port #2 - pin 1 & pin 9 Selection (12V)
36	6	CPU Type Selection
37	6	CPU Type Selection
38	6	CPU Type Selection
39	6	CPU Type Selection
40	2	Video Test Mode Selection
41	2	2 X CPU Clock Select for VGA
42	2	Ethernet Boot ROM Selection
43	8	Lattice PLD - not to be used
44	3	SIMM 1 Selection - Volatile or Non-volatile
45	3	SIMM 2 Selection - Volatile or Non-volatile
46	3	3.45V/5V Selection for VGA for Color/Mono LCD
47	3	3.45V/5V Selection for Color/Mono LCD

5-5. Interface Specifications

J	Connector	J	Connector
1	FDD	16	Serial Port w/o Voltage Supply
2	HDD	17	External VGA
3	Printer	18	Non-existent
4	Serial Port w/ Voltage Supply	19	Non-existent
5	Serial Port w/ Voltage Supply	20	Non-existent
6	Serial Port w/ Voltage Supply	21	Non-existent
7	Keyboard Interface	22	Non-existent
8	Contrast Voltage Adjustment	23	Non-existent
9	Color LCD Display	24	Non-existent
10	Monochrome LCD Display	25	Serial Port for Smart Card (see J3)
11	Parallel Port	26	Internal VGA Port (see J12)
12	VGA Port	27	Non-existent
13	Serial Port w/ Optional Voltage Supply	28	Non-existent
14	Serial Port w/ Optional Voltage Supply	29	Non-existent
15	Serial Port w/o Voltage Supply	30	Non-existent

[Summary of all the Ports]

5-5-1. Power Supply Connectors

PS1	Power Supply Connector
1	Power Good
2	+5V
3	+12V
4	-12V
5	Gnd
6	Gnd
7	Gnd
8	Gnd
9	-5V
10	+5V
11	+5V
12	+5V

PS3	UPS Connector
1	Gnd
2	+10V
3	Enable Backlight
4	Power Fail
5	Power Switch On/Off
6	UPS Off

[Power Supply Connection]

The UPS connection is used only for battery-backup system.

5-5-2. LCD VGA Ports

Pin	J9 - Color LCD Display	J10 - Monochr. LCD Display
1	DL4 - Display Data Signal	Scan Start-up Signal
2	Gnd	Input Data Latch
3	DL5	Data Input Clock
4	Scan Start-up Signal	+5V
5	DL6	+5V
6	Input Data Latch	Gnd
7	DL7	VEE - Power supply for LCD
8	Gnd	DU0
9	Gnd	DU1
10	Data Input Clock	DU2
11	DL0	DU3
12	Contrast Adjust Voltage	DL0
13	DL1	DL1
14	+5V	DL2
15	Gnd	DL3
16	+5V	
17	DL2	
18	+5V	
19	DL3	
20	Gnd	
21	DU3 - Display Data Signal	
22	DU4	
23	DU2	
24	DU5	
25	DU1	
26	Gnd	
27	DU0	
28	DU6	
29	Gnd	
30	DU7	

[LCD Ports]

5-5-3. VGA Ports

Pin	J12 - VGA (D-Sub 15pin)	J26 - Header 10pin
1		Red
2		Green
3		Blue
4		Gnd
5		Gnd
6		Gnd
7		Gnd
8		Gnd
9		HSync
10		VSync
11		
12		
13		
14		
15		

[VGA Connection]

5-5-4. Serial Ports

Serial Port	Default Peripheral	Location on M/B	+12V, +5V
#1	Customer Display	J4	Default
#2		J5	Default
#3	POS Printer	J3	Selectable
#4		J6	Default
#5	User-defined	J14 & J25	Selectable (0.5A Fuses)
#6	User-defined	J13	Selectable (0.5A Fuses)
#7	User-defined	J15	Nil
#8	User-defined	J16	Nil

[Overview of Serial Ports]

Pin	J3	J4	J5	J6
1	+12V/CD	+12V	+12V	+12V
2	Rxd	Rxd	Rxd	Rxd
3	Txd	Txd	Txd	Txd
4	DTR	DTR	DTR	DTR
5	Gnd	Gnd	Gnd	Gnd
6	DSR	DSR	DSR	DSR
7	RTS	RTS	RTS	RTS
8	CTS	CTS	CTS	CTS
9	+5V/RI	+5V	+5V	+5V

[4 of the 8 Serial Ports]

	Ext. Port #1	Ext. Port #2	Ext. Port #3	Ext. Port #4
Pin	**J13**	**J14**	**J15**	**J16**
1	+12V/CD	+12V/CD	CD	CD
2	Rxd	Rxd	Rxd	Rxd
3	Txd	Txd	Txd	Txd
4	DTR	DTR	DTR	DTR
5	Gnd	Gnd	Gnd	Gnd
6	DSR	DSR	DSR	DSR
7	RTS	RTS	RTS	RTS
8	CTS	CTS	CTS	CTS
9	+5V/RI	+5V/RI	RI	RI

[Another 4 of the Serial Ports]

5-5-5. Ethernet Port

The connector used conforms to the industry-standard RJ-45. Refer to the relevant documents.

5-5-6. Drawer Port

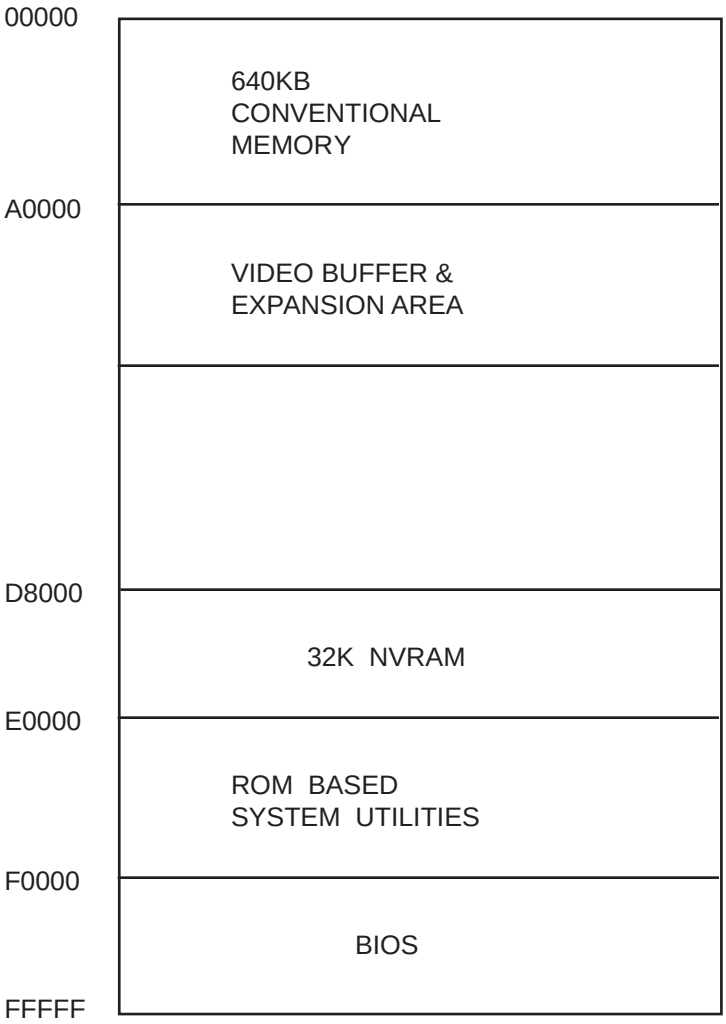
Pin Number	Signal Name	Signal Direction
1	FG	NA
2	Drawer kick drive A	Output
3	Drawer open/close	Input
4	+24V	NA
5	Drawer kick drive B	NA
6	SG	NA

[Cash Drawer]

5-6. Memory map

The memory system is that of the IBM AT PC-compatible.

The size of the system memory depends on the size of the SIMM fitted. See the figure below.



5-7. Serial Port Assignments

For convenience, the serial port table is reproduced here.

The serial ports for the optional operator display and the 2x20 customer display are controlled by ACER M5105-A4 controller chip.

These ports support only IRQ3 and IRQ4 and can go up to 56Kbps.

No.	Location	Default Device	Selectable Add Setting	Selectable IRQ	Legend	Default Addr/IRQ
#1	Internal	Customer Display	02E8, 02F8	3	-	03F8 / 4
			03E8, 03F8	4		
#2	External	User-defined	as below	as below	Ext 1	02F8 / 3
#3	Internal	Printer	02E8, 02F8, 03E8, 03F8, 3220, 3228, 4220 & 4228	3, 4, 10, 11, 12 & 15	-	03E8 / 10
#4	External	User-defined	as above	as above	Ext 2	02E8 / 11
#5	Internal	Not used			-	DIS / DIS
#6	Internal	Not used			-	DIS / DIS
#7	External	User-defined	as above	as above	Ext 3	4220 / 12
#8	External	User-defined	as above	as above	Ext 4	4228 / 15

: default

To change the default setting, the procedure for changing the setting must be followed.

This is shown in BIOS setup section.

To change the setting, disable all address and IRQ of all serial ports.

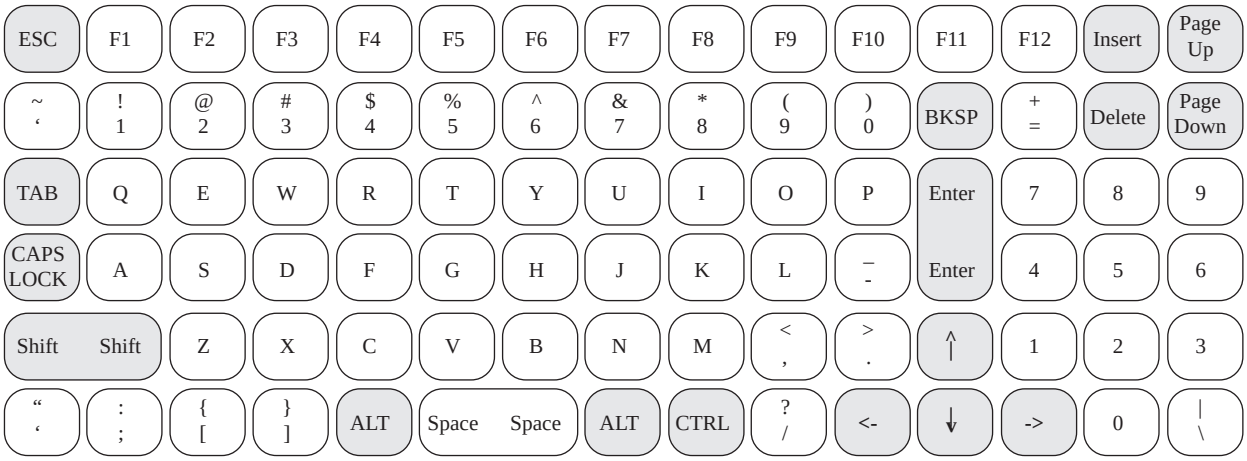
Then change from serial port #1.

5-8. Keycodes

POS KEYBOARD NUMBER

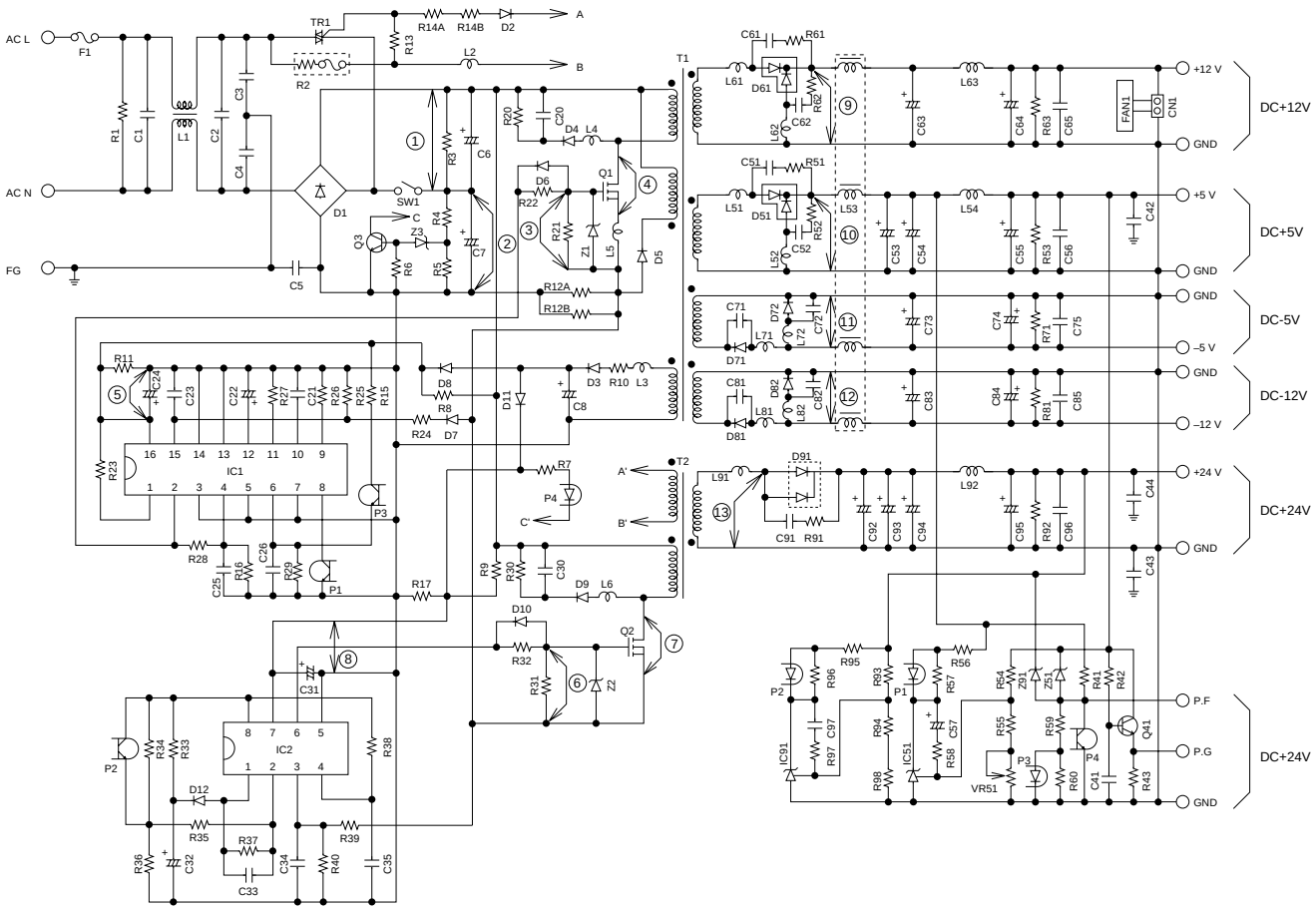
120	112	104	96	88	80	72	64	56	48	40	32	24	16	0
123	115	107	99	91	83	75	67	59	51	43	35	27	19	3
124	116	108	100	92	84	76	68	60	52	44	36	28	20	4
125	117	109	101	93	85	77	69	61	53	45	37	29	21	13
126	118	110	102	94	86	78	70	62	54	46	38	30	22	14
127	119	111	103	95	82	74	66	58	50	41	33	25	17	9

Key code


ESC F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 Insert Page Up
~ ‘ ! 1 @ 2 # 3 $ 4 % 5 ^ 6 & 7 * 8 (9) 0 BKSP + = Delete Page Down
TAB Q E W R T Y U I O P Enter 7 8 9
CAPS LOCK A S D F G H J K L _ - Enter 4 5 6
Shift Shift Z X C V B N M < , > . ^ 1 2 3
“ ‘ : ; { [}] ALT Space Space ALT CTRL ? / <- -> 0 | \

Keyboard layout

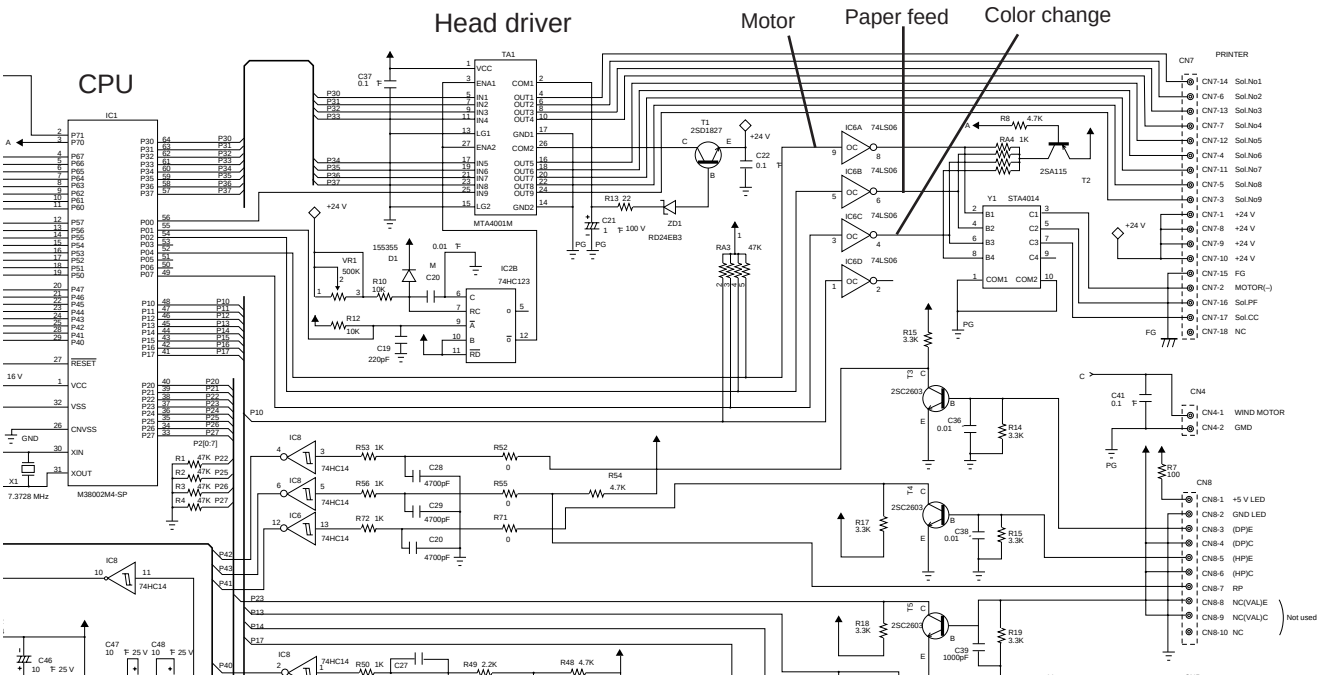
5-9. Power supply circuit



No.	Point	Voltage level (V)
1	C6	DC180 - 190V
2	C7	DC180 - 190V
3	R21	Less than 30V (Pulse)
4	Q1(D-S)	350 - 400V (Pulse)
5	C24	DC18 - 30V
6	R31	Less than 30V (Pulse)
7	Q2 (D-S)	350 - 400V (Pulse)
8	C31	DC18 - 30V
9	D61 (K-GND)	20V (Pulse)
10	D51 (K-GND)	12V (Pulse)
11	D71 (K-GND)	12V (Pulse)
12	D81 (K-GND)	20V (Pulse)
13	D91 (K-GND)	30V (Pulse)

5-10. Printer control PCB(SA-5000)

The following circuit is printer control circuit for SA-5000.



TXD : Paper end signal

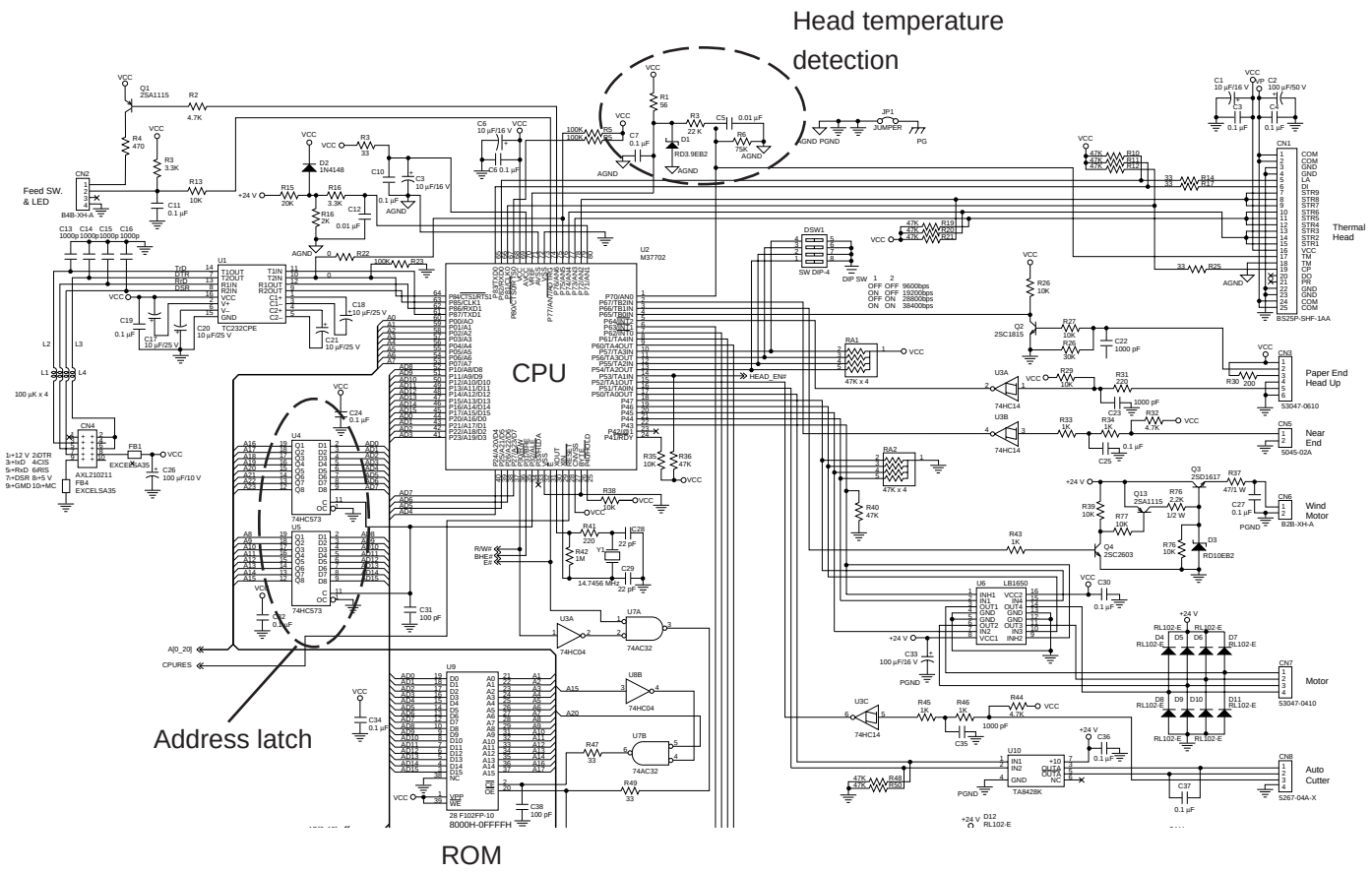
RXD : Data communication between motherboard

DTR : Printer busy signal

Wimding motor control circuit

5-11. Printer control PCB(SA-5100)

The following circuit is for printer control for SA-5100.

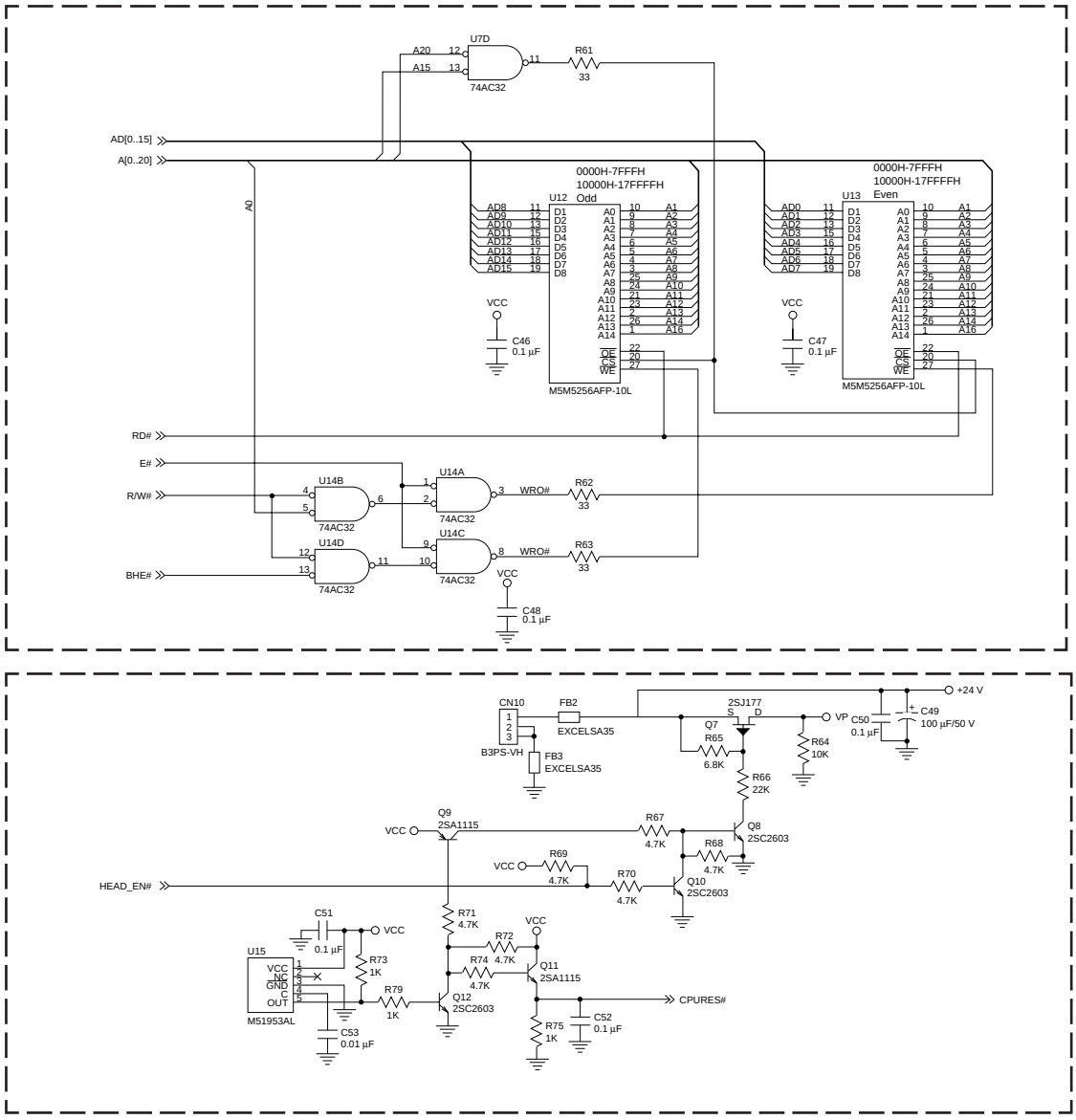


SA-5100 has a thermal printer (LT-380).

To protect the head breakage, CPU control the head temperature and head power supply control.

Temparature	Action
Over 60°C	Stop printing
Less than 55°C	Printing

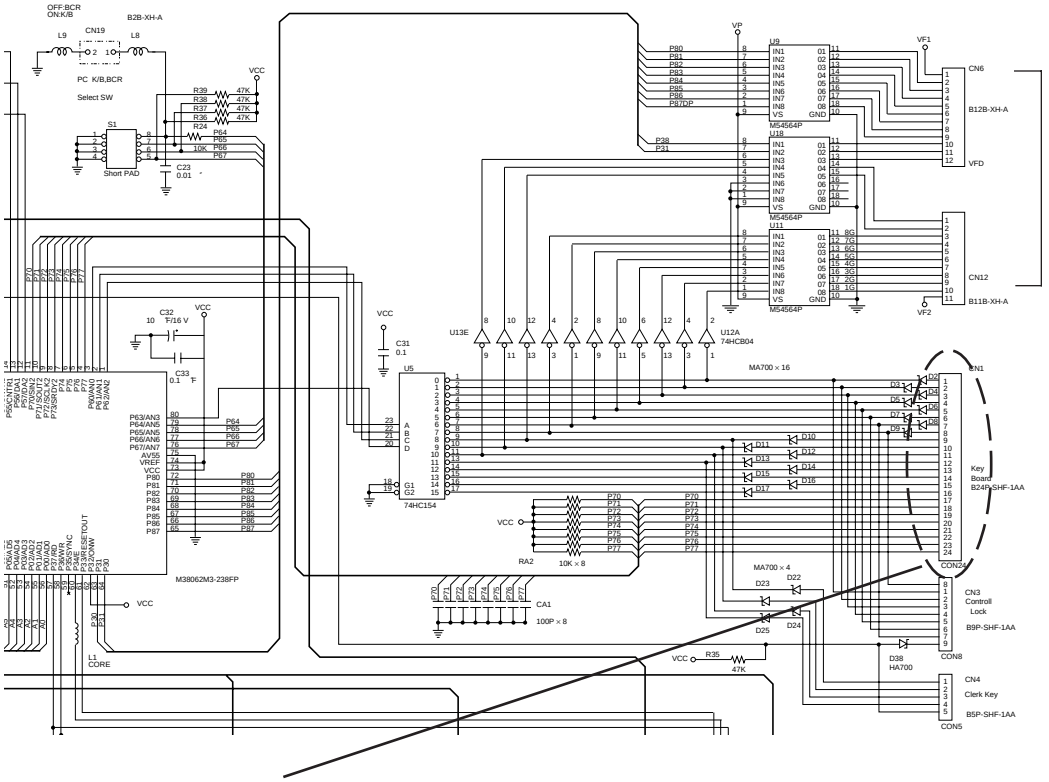
Data buffer for graphic data : 64KB (32KB x 2)



Power control circuit for head

+24V supplies to head when start printing.

5-12. Key control PCB

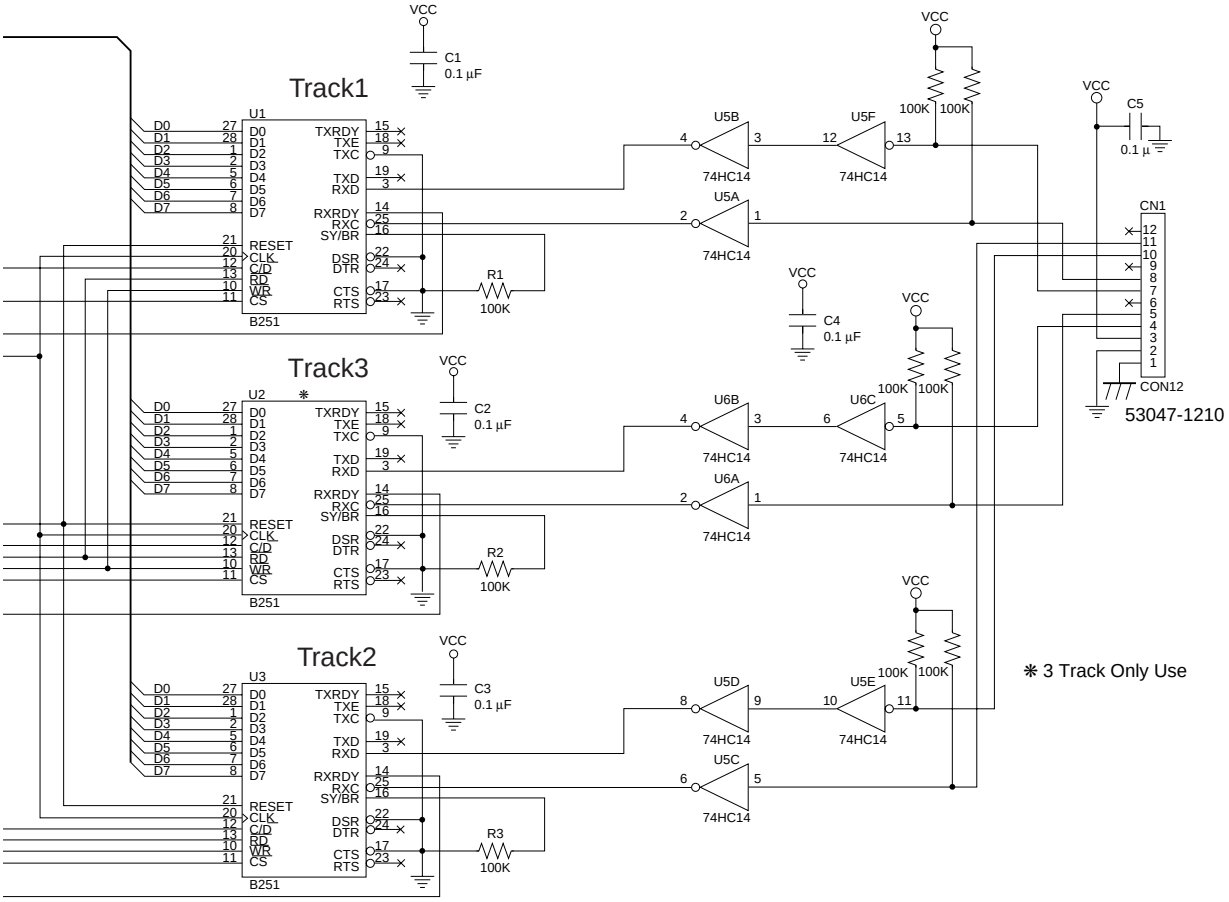


SA-5060N : Signal 1 to11
Mode key : Signal 1 to 8
Clerk key : Signal 9 to 12
Keyboard : Signal 1 to 16 : Key common signal
Signal 17 to 24 : Key input signal

Key common signal

Key input signal	CN2	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
P77	24	128	120	112	104	96											
P76	23	127	119	111	103	95	87	79	71	63	55	47	39	31	23	15	
P75	22	126	118	110	102	94	86	78	70	62	54	46	38	30	22	14	
P74	21	125	117	109	101	93	85	77	69	61	53	45	37	29	21		5
P73	20	124	116	108	100	92	84	76	68	60	52	44	36	28	20		4
P72	19						83	75	67	59	51						
P71	18											42	34	26	18	10	
P70	17	121	113	105	97	89	81	73	65	57	49	41	33	25	17		1

5-13. MCR control PCB



Standard MCR is 2 track system.

To use the 3 track MCR system, replace the MCR unit and mount the IC (location U2).

5-14. Battery causion

The following ICs have a battery inside.

To carry the motherboard, do not put its solder side on the metal plate.

IC : DS1230Y-200(DALLAS)

IC : DS12887 (DALLAS)

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used IC package according to the manufacturer's instruction.

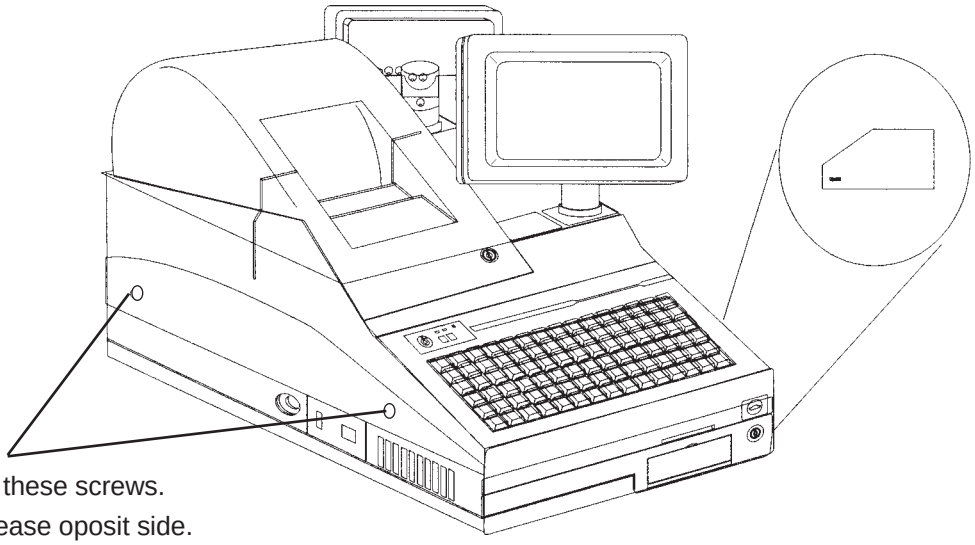
Remplacez les batteries par un modèle equival lent ou de préférence par celles recommandees par le constructeur.
Disposez le package IC selon les instructions du constructeur.

Nur mit gleichen, oder vom Herstellen freigegebenen, type ersetzen.
Gebrauchte Gehasuse nur entsprechend den Anwweisungen des Herstellen entsorgen.

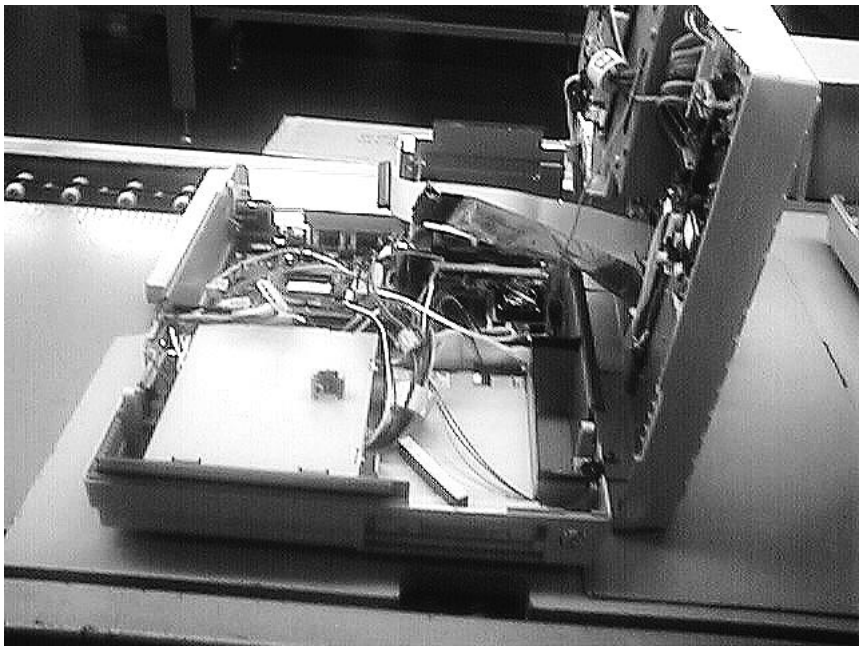
6. To open / close the upper case

CAUTION : Make sure that the hard disk drive is complete stop before open tha upper case.
Otherwise, the HDD might be defect.
Leave the machine about 40 seconds after power turned off.

1. Release the 4 pcs of screws and lift up the upper case as following figure.

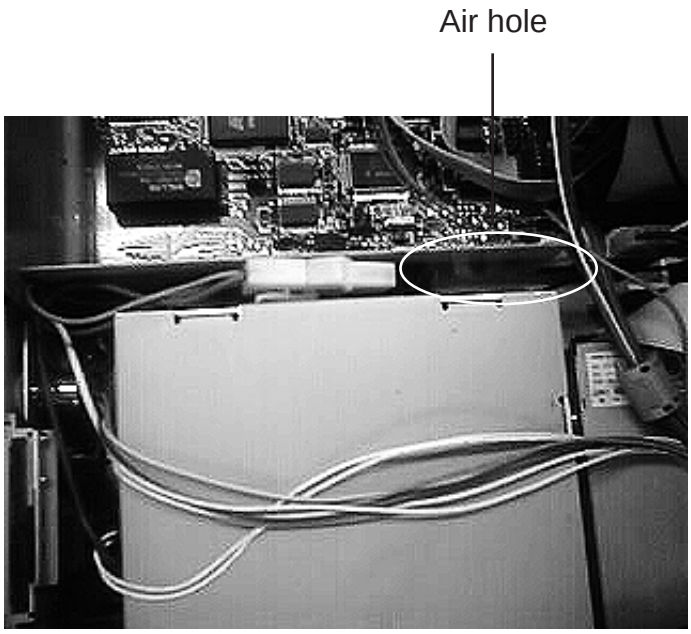


Release these screws.
Also, release oposit side.



Open the upper case like this figure.

2. In case the power supply unit is replaced, do not close the air hole of power supply unit.



3. To close the upper case, please be careful not to catch the cable between cases or metal plate when closing the case.

7. RESET OPERATION

7-1. Hard reset

It works as PC reset button.

1. Open the upper case.
2. Make short the terminals of JP2 by metal tweezers on the motherboard and turn the power the power switch on.
3. Wait for 5 seconds and release the tweezers, then hard reset is performed.

7-2. C-MOS reset

It is necessay to clear the data when change the BIOS.

1. Open the upper case.
2. Make short the terminals of JP1 by metal tweezers according to the C-MOS type.

C-MOS	Short terminal
DS12887	Pin No.1 and 2
DS12887A	Pin No.2 and 3

3. Turn the power switch on with JP1 shorted.
4. Wait for 5 seconds and turn the power switch off.
5. C-MOS reset operation is performed.
6. To conform the reset opeartion, turn the power switch on. Then, the machine is beep and appears “CMOS ERROR” on the LCD display.
   In case this message is not appears, execute 1 to 5 again.
7. Then, Execute “BIOS setup” opearation.

7-3. Memory change

It is necessary to clear the error message when change the memory size.

1. After change the memory size, “ MOMORY SIZE ERROR” appears on the screen.
2. To clear the error message, simply goto “BIOS setup”, and select “SAVE AND EXIT”.
3. Then, memory size is stored in the C-MOS.

7-4. BIOS Setup

This chapter provides the user relevant information on setting the BIOS.
The system BIOS used is from AMI. The following is a list of BIOS modifications for the system.

- **System setup**
- **Chipset setup**
- **Support a maximum of 8 serial ports**
- **System self test**
- **Power restore/backup**

7-4-1. Defining the Keys

←	Left key :	key “4” (ASCII 34h) or cursor Left key
→	Right key :	key “6” (ASCII 36h) or cursor Right key
↑	Up key :	key “8” (ASCII 38h) or cursor Up key
↓	Down key :	key “2” (ASCII 32h) or cursor Down key
PageUp	Page Up :	key “9” (ASCII 39h) or PageUp key
PageDown	Page Down :	key “3” (ASCII 33h) or PageDown key
Enter	Enter key :	Enter key (ASCII 0Dh)

7-4-2. BIOS setup operation

To change the BIOS setup menu

1. Turn the mode key to “5” position.
2. Turn the power switch on.
3. Press “5” button when the AMI BIOS screen appears on the LCD display.
4. Then main menu appears on the LCD display.

7-4-3. Main Menu

The main menu is shown below. The standard display device is usually the VGA CRT on which the BIOS for a IBM PC-AT compatible will display a full menu. However, in order to use the 2X20 VFD module for CMOS setting, this format has been modified.

1. **Serial Port Setup**
2. **System Setup**
3. **Reset to Default Values**
4. **Save & Quit**
5. **Exit w/o Saving**

When the BIOS system setup is entered, the program will display the first two lines of the main menu on the operator display (2 x 20 VFD), and the cursor on the display should be set to the first line, first column.

1		**S**	**E**	**R**	**I**	**A**	**L**		**P**	**O**	**R**	**T**	**S**		**S**	**E**	**T**	**U**	**P**
2		**S**	**Y**	**S**	**T**	**E**	**M**		**S**	**E**	**T**	**U**	**P**						

When a **Down** key is pressed in succession, the cursor on the display will move to the first column on the next line as well as scroll the display as shown below.

Display:

2		**S**	**Y**	**S**	**T**	**E**	**M**		**S**	**E**	**T**	**U**	**P**						
3		**R**	**E**	**S**	**E**	**T**		**T**	**O**		**D**	**E**	**F**	**A**	**U**	**L**	**T**	**S**	

Display:

3		**R**	**E**	**S**	**E**	**T**		**T**	**O**		**D**	**E**	**F**	**A**	**U**	**L**	**T**	**S**	
4		**S**	**A**	**V**	**E**		**A**	**N**	**D**		**E**	**X**	**I**	**T**					

Display:

4		**S**	**A**	**V**	**E**		**A**	**N**	**D**		**E**	**X**	**I**	**T**				
5		**E**	**X**	**I**	**T**		**W**	**/**	**O**		**S**	**A**	**V**	**I**	**N**	**G**		

Similarly, when an **Up** key is pressed, the cursor will move to the upper line as well as scroll the display.
If the cursor is on the first line, the program will ignore the **Up** key. Similarly, if the cursor is on the last line of the menu, the program will ignore the **Down** key.
To select an item in the main menu, place the cursor on the item and press the **<Enter>** key.
The program will then display the sub-menu of the selected item.

7-4-3-1. Serial Ports Setup

When the Serial Ports Setup is selected, a sub-menu will be displayed and the cursor will be placed on the ADDR field.

C	**U**	**S**	**T**	**O**	**M**	**E**	**R**		**D**	**I**	**S**	**P**	**L**	**A**	**Y**	**:**		
	A	**D**	**D**	**R**	**:**		**0**	**3**	**F**	**8**			**I**	**N**	**T**	**:**	**4**	

The **Left** or **Right** key should be used to move the cursor between the ADDR and INT field.
The **Up** and **Down** key should be used to select one of the available addresses or interrupts.
The available addresses for customer display are **02E8, 02F8, 03E8** and **03F8** and the available interrupts are **3** and **4**.
When a **PageDown** key is pressed, the operator display option will be displayed with corresponding address and interrupt setting stored in the RTC's CMOS. This port and Fiscal port are not used.

O	**P**	**E**	**R**	**A**	**T**	**O**	**R**		**D**	**I**	**S**	**P**	**L**	**A**	**Y**	**:**		
	A	**D**	**D**	**R**	**:**		**D**	**I**	**S**				**I**	**N**	**T**	**:**	**D**	**I**	**S**

When the operator display option is displayed and the **PageUp** key is pressed, the display will switch to customer display option.
Likewise, when the **PageDown** key pressed, the next display will be displayed and so on.
The available addresses for the POS printer, external RS232 #1 - 4 are **02E8**, **02F8**, **03E8**, **03F8**, **3220**, **3228**, **4220** and **4228**. The available interrupts are **3**, **4**, **10**, **11**, **12** and **15**.
At any time when the **<Enter>** key is pressed, all the setting of the serial port addresses and interrupts will be saved in a temporary buffer before returning to the Main Menu.

P	O	S		P	R	I	N	T	E	R	:							
	A	D	D	R	:		0	3	E	8			I	N	T	:		1	0

F	I	S	C	A	L		P	O	R	T	:							
	A	D	D	R	:		D	I	S				I	N	T	:	D	I	S

E	X	T	.		R	S	2	3	2		#	1	:					
	A	D	D	R	:		0	2	F	8			I	N	T	:		3	

E	X	T	.		R	S	2	3	2		#	2	:					
	A	D	D	R	:		0	2	E	8			I	N	T	:		1	1

E	X	T	.		R	S	2	3	2		#	3	:					
	A	D	D	R	:		4	2	2	0			I	N	T	:		1	2

E	X	T	.		R	S	2	3	2		#	4	:					
	A	D	D	R	:		4	2	2	8			I	N	T	:		1	5

7-4-3-2. System Setup

The system setup is as follows:

Date and Time Setting
HDD Setting
Type of Drive
Drive A and B
Boot Sequence and Internal Cache
External Cache and System Shadow Setting
Parity and Video Shadow Setting
Boot ROM Setting

When the System Setup is selected, the following figure will be displayed and the cursor is placed on the date field on first line.

D	**A**	**T**	**E**	**:**		**2**	**3**		**J**	**A**	**N**		**1**	**9**	**9**	**8**		
T	**I**	**M**	**E**	**(**	**H**	**:**	**M**	**:**	**S**	**)**	**:**	*h*	*h*	*:*	*m*	*m*	*:*	*s*	*s*

The **Left** key is used to move the cursor from the date field to the month field and from the month field to the year field. It is also used to move from seconds to minutes and from minutes to hours.
The **PageDown** key is used to present the next display while the **PageUp** key is used to present the previous display.

C	**Y**	**L**	**S**	**:**		*c*	*c*	*c*			**H**	**E**	**A**	**D**	**S**	**:**		*h*	*h*
S	**E**	**C**	**T**	**:**		*s*	*s*												

D	**R**	**V**	**.**		**A**	**:**		**1**	**.**	**4**	**4**	**M**		**3**	**.**	**5**	**I**	**N**	
D	**R**	**V**	**.**		**B**	**:**		**N**	**O**										

B	**O**	**O**	**T**		**S**	**E**	**Q**	**N**	**.**	**:**		**A**	**,**	**C**					
I	**N**	**T**	**.**		**C**	**A**	**C**	**H**	**E**	**:**		**D**	**I**	**S**	**A**	**B**	**L**	**E**	

S	**Y**	**S**	**T**	**.**		**S**	**H**	**A**	**D**	**O**	**W**	**:**		**O**	**F**	**F**			
E	**X**	**T**	**.**	**C**	**A**	**C**	**H**	**E**	**:**	**D**	**I**	**S**	**A**	**B**	**L**	**E**			

P	**A**	**R**	**I**	**T**	**Y**	**:**		**O**	**F**	**F**								
V	**I**	**D**	**E**	**O**		**S**	**H**	**A**	**D**	**O**	**W**	**:**		**O**	**F**	**F**			

B	A	S	E		A	D	D	R	:	1	0	0						
B	O	O	T		R	O	M	:	D	I	S							

The **<Enter>** key is used to exit this setup and return to the Main Menu.

The options available for drive A are:

- **360KB 3.5”**
- **720KB 3.5”**
- **1.44M 3.5”**
- **1.2M 5.25” and**
- **No.**

7-4-3-3. Reset to Default Values

When this sub-menu is selected, the following figure will be displayed.

R	E	S	E	T		T	O		D	E	F	A	U	L	T	S	:	
A	R	E		Y	O	U		S	U	R	E	:		N	O			

The **Up**, **Down**, **Left**, **Right**, **PageUp** and **PageDown** keys are used to toggle between the options **Yes** and **No**. The **<Enter>** key is be used to select the option. If “YES” is selected, all setting available in this program are reset to default values and return to Main Menu.

7-4-3-4. Save & Exit

When this sub-menu is selected, the program will save all configuration data to CMOS memory and then re-boot.

7-4-3-5. Exit w/o Saving

Selecting this sub-menu causes the system to reboot without saving any of the setting.

8. To change the Monochrome to Color system

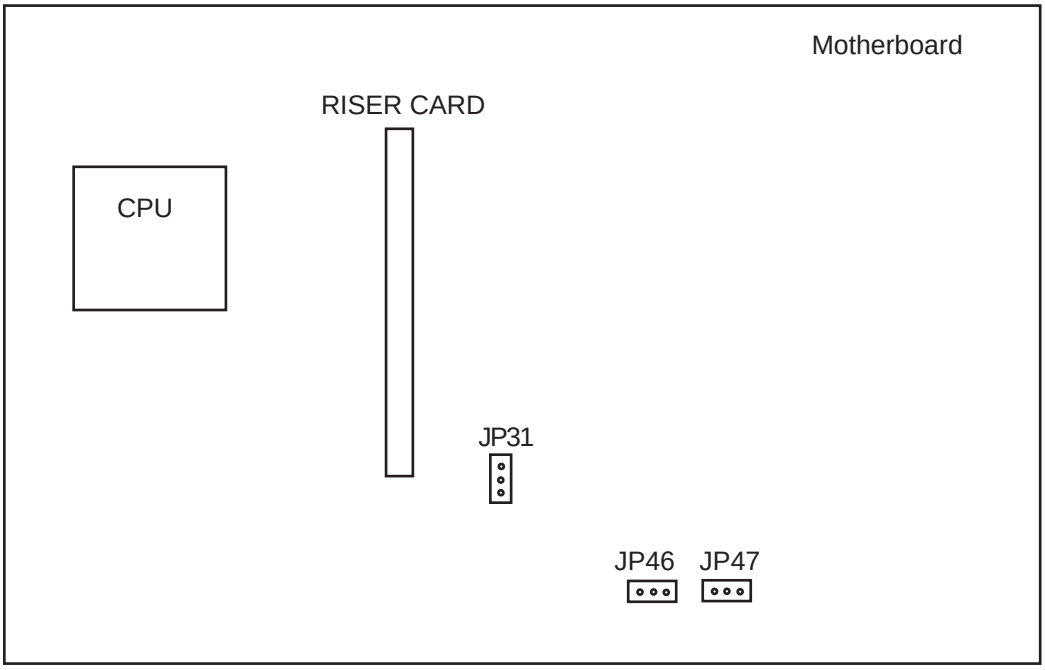
Original setting : SA-5000 Monochrome system
SA-5100 Color system

Operator display : SA-5001M Monochrome LCD display
SA-5002C Color LCD display

To mount the color LCD display SA-5002C to SA-5000, the following operation is necessary;

1. Open the upper case.
2. Replace the Video BIOS ROM from Monochrome to Color.
3. Change the jumper of the motherboard as below.

Jumper	SA-5001M	SA-5002C
JP31	2 - 3	1 - 2
JP46	1 - 2	2 - 3
JP47	1 - 2	1 - 2



JUMPER POSITION

9. DIAGNOSTIC PROGRAM

1. Diagnoses

(1) BIOS version check
(2) Operating system version check
(3) PC keyboard and memory test
(4) Clock speed test
(5) Keyboard test
(6) FDD test
(7) Customer display test
(8) NVRAM test
(9) LPT test
(10) Serial port test
(11) Cash drawer test
(12) Manager key lock test
(13) Ethernet test
(14) MCR test
(15) Printer test
(16) LCD test
(17) DSKBENCH test
(18) Virus check

2. Necessary tools

(1) PC keyboard (1 unit)
(2) Loop back test connector
  • D-sub 9-pin connector (4 pcs.)
  • D-sub 25-pin connector (1 pce.)
  • Modular (1 pce.)
(3) Control key (turns all the way)
(4) Cash drawer (2 units)
(5) CRT (1 unit)
(6) Customer display (1 unit)
(7) MCR card (1 pce)
(8) Paper roll
(9) Ink ribbon
(10) Diagnostic floppy disk

3. Preparation

(1) Connect loop back test connector to the I/F terminal on the rear panel.
(2) Connect a PC keyboard to Ext.KB which is located on the left side of the SA-5000/5100 and turn the slide switch to “K” position.
(3) Connect two cash drawer units.
(4) Connect a customer display.
(5) Connect a CRT to Ext.VGA port.
(6) Set a control key on “0” position.

4. System tools

(1) Parallel port loop back plug
  • Connector: 25-pin D-sub, Male
  • Wiring: connect 1-13, 12-14, 11-17, 10-16, and 2-15 pins
  • Necessary quantity: 1 pce.
(2) COM port loop back plug
  • Connector: 9-pin D-sub, Female
  • Wiring: connect 1-7-8, 2-3, and 4-6 pins
  • Necessary quantity: 4 pcs.
(3) Network port loop back plug
  • Connector: RJ45 8-in
  • Wiring: connect 1-3, and 2-6 pins
  • Necessary quantity: 1 pce.
(4) Scanner interface
  • Keyboard wedge type bar code scanner (1 set)
  • Bar code label
(5) Magnetic card reader
  • Magnetic card
(6) Cash drawer interface
  • Cash drawer (2 units)

Operation	To be checked	Print
Turn the power on.	Make sure that BIOS version indication on <screen 1> is 1.3. • SA-5000/5100 display and the CRT change to <screen 2>. • LCD back light turns on. • Make sure that the LCD contrast is proper. • Fan in the power supply unit turns.	
Feed the paper roll using [FEED] button.	Confirm that the spooler rolls up the paper while pressing FEED button.	
Press [V][E][R] [ENTER] on PC keyboard.	Display indicates; `MS-DOS Version 6.22`	
Press[M][E][M] [ENTER] on PC keyboard.	Make sure that the total memory is 4,096K.	
Insert diagnostic program FDD in the slot.		
Input [A] [:][ENTER] from SA-5000/5100 keyboard. (To enter [:], press [;] while pressing down [SHIFT] button.)		
[MENU] [ENTER]	Display indicates LANDMARK screen.	CPU & VGA SPEED TESTED
[ENTER] Speed test	• CPU clock frequency should be within the range of 560 to 580 MHz. • FPU clock frequency should be within the range of 910 to 930 MHz.	
[ESC] Keyboard test	When a button is pressed, corresponding button name on the screen is high lighted. Press all the buttons to test them.	KEYBOARD TESTED
Press [B][Y][E]	Display indicates; `Exit Program? (Y/N) : N`	
Press [Y] FDD test		FDD TEST PASSED
Customer display test	All the segments of the customer display light.	CUSTOMER DISPLAY TESTED

Operation	To be checked	Print
NVRAM test	Display indicates; NVRAM Test : Page 0 PASSED NVRAM Test : Page 1 PASSED NVRAM Test : Page 2 PASSED NVRAM Test : Page 3 PASSED NVRAM Test : Page 4 PASSED NVRAM Test : Page 5 PASSED NVRAM Test : Page 6 PASSED NVRAM Test : Page 7 PASSED	NVRAM Test : Page 0 PASSED NVRAM Test : Page 1 PASSED NVRAM Test : Page 2 PASSED NVRAM Test : Page 3 PASSED NVRAM Test : Page 4 PASSED NVRAM Test : Page 5 PASSED NVRAM Test : Page 6 PASSED NVRAM Test : Page 7 PASSED
LPT test	Display indicates; LPT1 Data Port Test : PASSED LPT1 Control Port Test : PASSED LPT1 Loopback Test : PASSED	LPT1 Data Port Test : PASSED LPT1 Control Port Test : PASSED LPT1 Loopback Test : PASSED
Serial port test	Display indicates; Serial Port 1, Base Address = 3F8 Internal Loopback Test PASSED External Loopback Test PASSED Serial Port 2, Base Address = 2F8 Internal Loopback Test PASSED External Loopback Test PASSED Serial Port 4, Base Address = 2E8 Internal Loopback Test PASSED External Loopback Test PASSED Serial Port 5, Base Address = 3220 Internal Loopback Test FAILED External Loopback Test FAILED Serial Port 6, Base Address = 3228 Internal Loopback Test FAILED External Loopback Test FAILED Serial Port 7, Base Address = 4220 Internal Loopback Test PASSED External Loopback Test PASSED Serial Port 8, Base Address = 4228 Internal Loopback Test PASSED External Loopback Test PASSED	Serial Port 1, Base Address = 3F8 Internal Loopback Test PASSED External Loopback Test PASSED Serial Port 2, Base Address = 2F8 Internal Loopback Test PASSED External Loopback Test PASSED Serial Port 4, Base Address = 2E8 Internal Loopback Test PASSED External Loopback Test PASSED Serial Port 5, Base Address = 3220 Internal Loopback Test FAILED External Loopback Test FAILED Serial Port 6, Base Address = 3228 Internal Loopback Test FAILED External Loopback Test FAILED Serial Port 7, Base Address = 4220 Internal Loopback Test PASSED External Loopback Test PASSED Serial Port 8, Base Address = 4228 Internal Loopback Test PASSED External Loopback Test PASSED
Cash drawer test	Display indicates; ****** CASH DRAWER TEST ****** Make sure that both drawers open.	CASH DRAWERS TESTED

Operation	To be checked	Print
Manager key lock test Turn control lock key in the following order. 0➔1➔2➔OFF➔ON➔5➔6➔7 [ENTER]	Display indicates; ****** MANAGER KEYLOCK TEST ****** TEST KEYLOCK BY TURNING TO DIFFERENT POSITION (0 TO 7) PRESS [ENTER] KEY TO END THE TEST 1234567	0 1 2 3 4 5 6 7 MASTER KEY TESTED
Clerk key lock test [ENTER]	Display indicates; ****** CLERK KEYLOCK TEST ****** Test the keylock with different keys Press [ENTER] key to end the Test	OPERATOR KEY TESTED
ETHERNET test	Display indicates; *** NET WORK TEST *** Should be PASSED	ETHERNET TEST PASSED
MCR test Read the card while display indicates; A : \ >	Display indicates; A:\98765432109876543210987654321098765432109876543 2 1098765432109876543210987654 Bad command or file name A:\>198506050055555	
[T][S][T][9][5][5][ENTER] for SA-5000 [T][S][T][9][5][6][ENTER] for SA-5100 [ENTER] [ENTER] [ENTER]	Display indicates; A : \ > cycle • • A : \ > pause Press any key to continue...... Lines should be square to the display frame. A : \ > pause Press any key to continue...... Lines should be square to the display frame. A : \ > pause Press any key to continue...... There should be no unevenness of the color or missing dot.	<SA-5100> 1014545890101454589010145458901014545890101456458 1014545890101454589010145458901014545890101456458 1014545890101454589010145458901014545890101456458 1014545890101454589010145458901014545890101456458 1014545890101454589010145458901014545890101456458 1014545890101454589010145458901014545890101456458 Auto Half Cut ------------------ — ----------------

Operation	To be checked	Print
[ENTER]	A : \ > pause Press any key to continue.....	<SA-5000> !"#$%'O*+,-./0123456789:;<=>?@ABCDEFG HIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno pqrstuvwxyz{|} BBBBBBBBBBBBBBBBBBBBBBBBBBBB BBBBBBBBBBBBBBBBBBBBBBBBBBBB BBBBBBBBBBBBBBBBBBBBBBBBBBBB BBBBBBBBBBBBBBBBBBBBBBBBBBBB BBBBBBBBBBBBBBBBBBBBBBBBBBBB BBBBBBBBBBBBBBBBBBBBBBBBBBBB BBBBBBBBBBBBBBBBBBBBBBBBBBBB
	A : \ > dskbench C : DISK Drive Speed TEST v0.03 Copyright 1992 ZOBplus Hayami 500 Kbyte file Write & Read Testing..... Sequential DISK Write Time : 00.35 ⇐ should be less than 1 second Sequential DISK Read Time : 00.28 ⇐ should be less than 1 second Random DISK Write Time : 03.57 ⇐ should be within 3 to 4 seconds Random DISK Read Time : 00 .97 ⇐ should be less than 1 second	
[ENTER]	A : \ > pause Press any key to continue	
	A : \ >	
	A : \ >	
[C][V][ENTER]	A : \ > \ cv \ cvakzin C:	
	•	
	•	
[ENTER]	– Hit any key –	
	•	
	•	
	•	
	325 files have been inspected. No file has been infected by known viruses.	
	A : \ >	
	Make sure that the unit is not infected.	
Eject diagnosis floppy disk.		
Turn the power off.		
Disconnect the cables.		
Set the slide switch on “S”.		

<Screen 1>

```
    American
  Megatrends AMIBIOS(C) 1996 American Megatrends Inc.,
Version 1.3

3712KB OK

WAIT...
Auto-Detecting Pri Master..IDE Hard Disk
Auto-Detecting Pri  Slave...Not Detected

Pri Master  :  02.02.01.  ST3850A



(C)American Megatrends Inc.,
41-1000-000000100111111-071595-FINAL-F
```

<Screen 2>

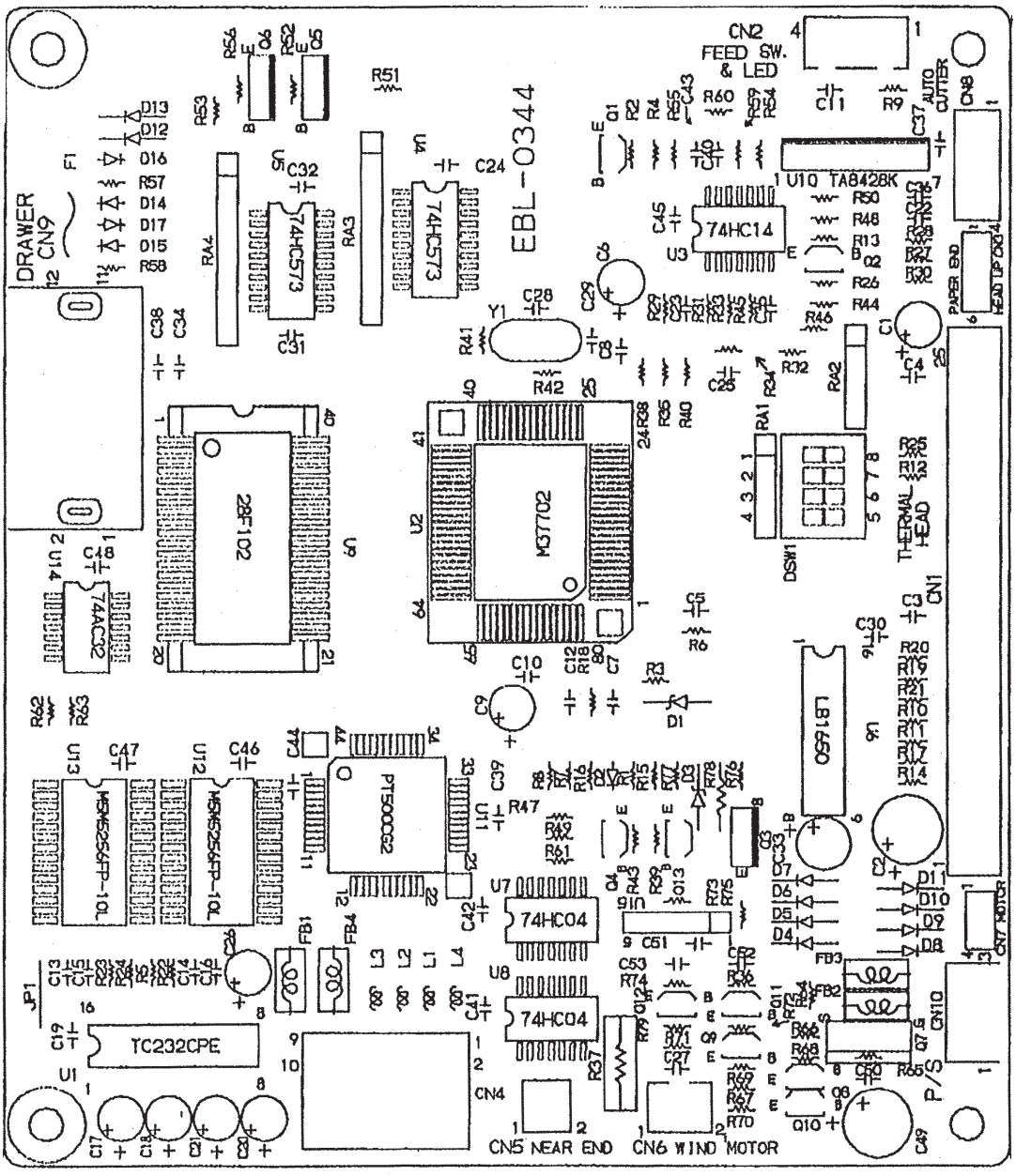
```
AMIBIOS System Configuration(C) 1985-1996, American Megatrends Inc.,

Main Processor   : Am5x86(X5)-P75      Base Memory Size   : 640KB
Main Processor   : Built-In            Ext. Memory Size   : 3072KB
Floppy Drive A:  : 1.44 MB 31/2"       Display Type       : VGA/EGA
Floppy Drive B:  : None                Serial Port(S)     : 3F8,2F8,3E8,2E8
AMIBIOS Date     : 07/15/95            Parallel Port(S)   : 378
Processor Clock  : 133MHz              Power Management   : Disabled

Hard Disk(S)     Cyl Head Sector Size  LBA    32Bit Block PIO
                                       Mode   Mode  Mode  Mode
Primary Master   : 1648 16 63 811MB    LBA    Off   16Sec 4

Plug and Play ISA Devices:
AMD PCnet-ISA II Ethernet Network Ad

PCI Devices  :
PCI Slot 1     VGA

Extrra COM Ports  ::  4220  4228
Starting MS-DOS...

HIMEM is testing extended memory...done.

C: \ > C: \ > DOS \ SMARTDRV.EXE \X
C: \ >
```

10.TROUBLE SHOOTING

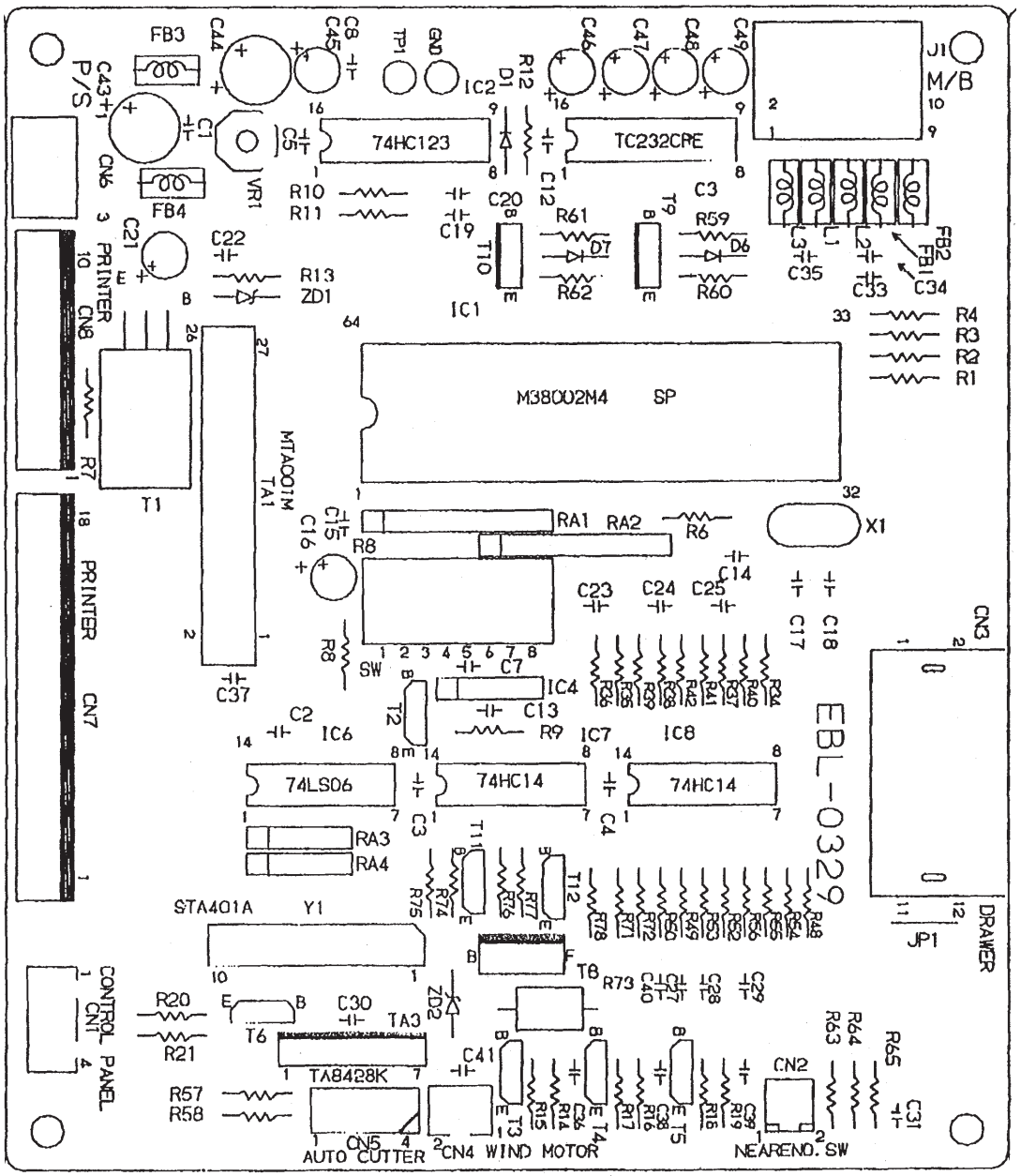
Problem	Solution
System does not respond	a. Check that the system is properly Connected to the power source b. Check if the power supply is still working. If the power supply is not working (most basic approach is to feel the fan from the air vent), do a thorough check to determine the cause. Do not attempt to replace the power supply until the cause is rectified.
No Display but Power supply is working	a. Check that the DRAM contact is good. To confirm, remove the DRAM and Reinsert.
Upon boot up, system stopped after ram check	a. The K-S switch (keyboard–scanner) Switch might be set to “K” but there is no external keyboard connected. b. Ram is not compatible with the motherboard. c. Hard disk (if connected) not detected by BIOS. Go to BIOS setup and check is HDD is set to AUTO mode. If yes but HDD is still not detected, try to check HDD connection,including the HDD mode (ie. Master / Slave)
Upon power up, “paper Out” LED blinks	a. Paper is jammed on the printer. Open The printer compartment and rectify The problem.
System experienced intermittent hang	a. Check to ensure that the following are Correct : 1. Jumper setting 2. CPU correctly detected by BIOS 3. Power Supply fan is still working. 4. CPU fan is still working.
“Paper out” LED lights up every time a command is sent to the printer	a. Incorrect baud rate setting. Check that the system is communicating with the printer at the correct baud rate.
KEYBOARD mapping is lost after Power off	a. The system will not hold the new keyboard mapping.Each time after Power lost, a “REMAP” need to be executed. (can be included onto the autoexec.bat file)
Interface card does not work (ie. ISA/PCI card on the riser card)	a. Check that the connection is proper (ie. From interface card to riser card and from riser card to Motherboard) b. Check that there are no interrupt conflicts. Bare in mind that any interface card plugged onto the riser card takes up interrupt which has to be released.
Funny display on LCD/CRT	a. This will usually happen when the VGA chip is too hot. Check to ensure There are no excessive heat built up in the system.

11. PCB LAYOUT

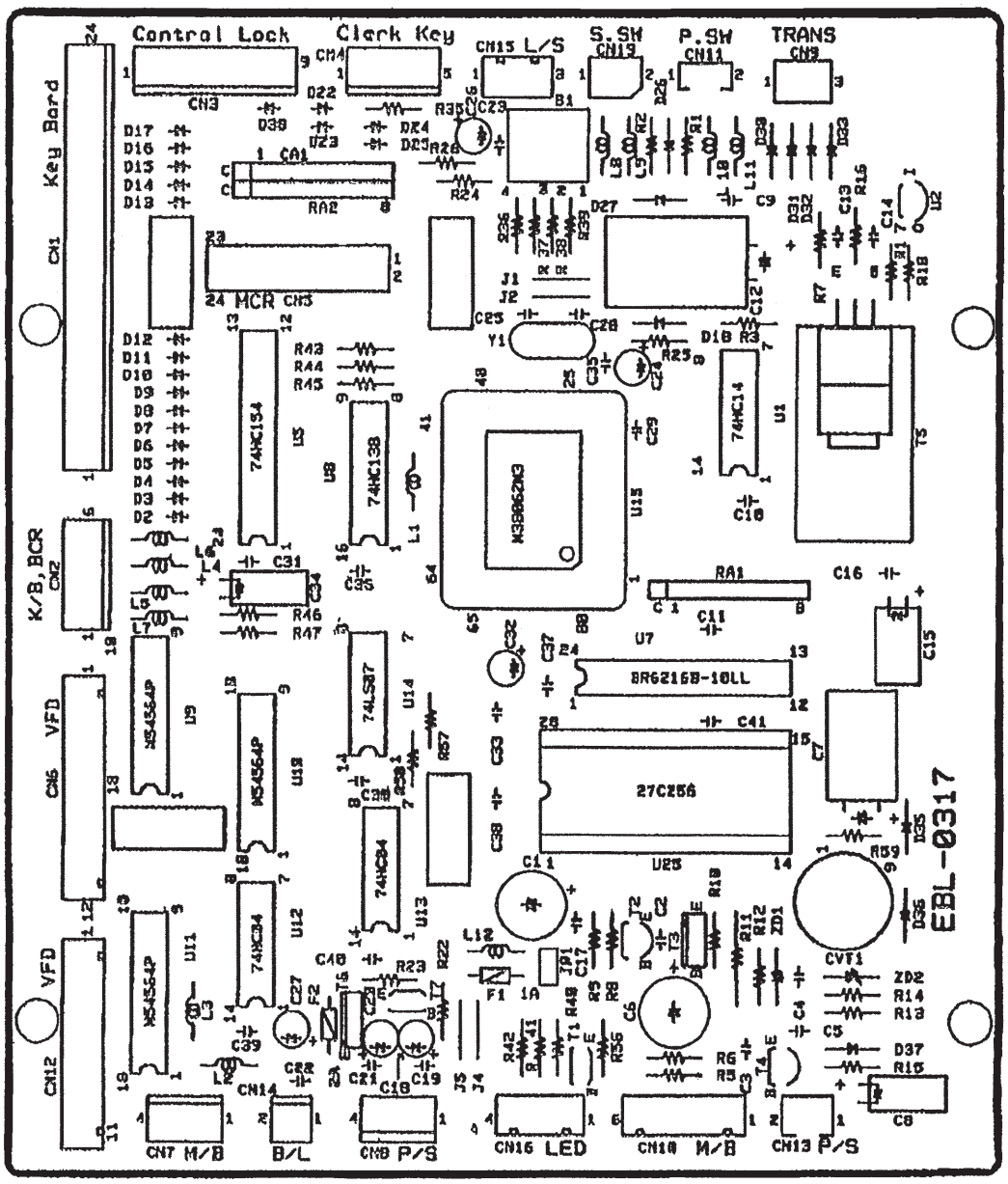
11-1. SA-5100 PRINTER CONTROL PCB



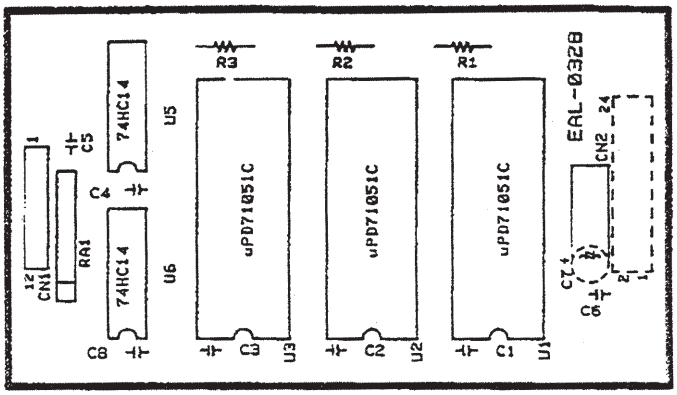
11-2. SA-5000 PRINTER CONTROL PCB



11-3. KEYBOARD CONTROL PCB (SA-5000 / SA-5100)

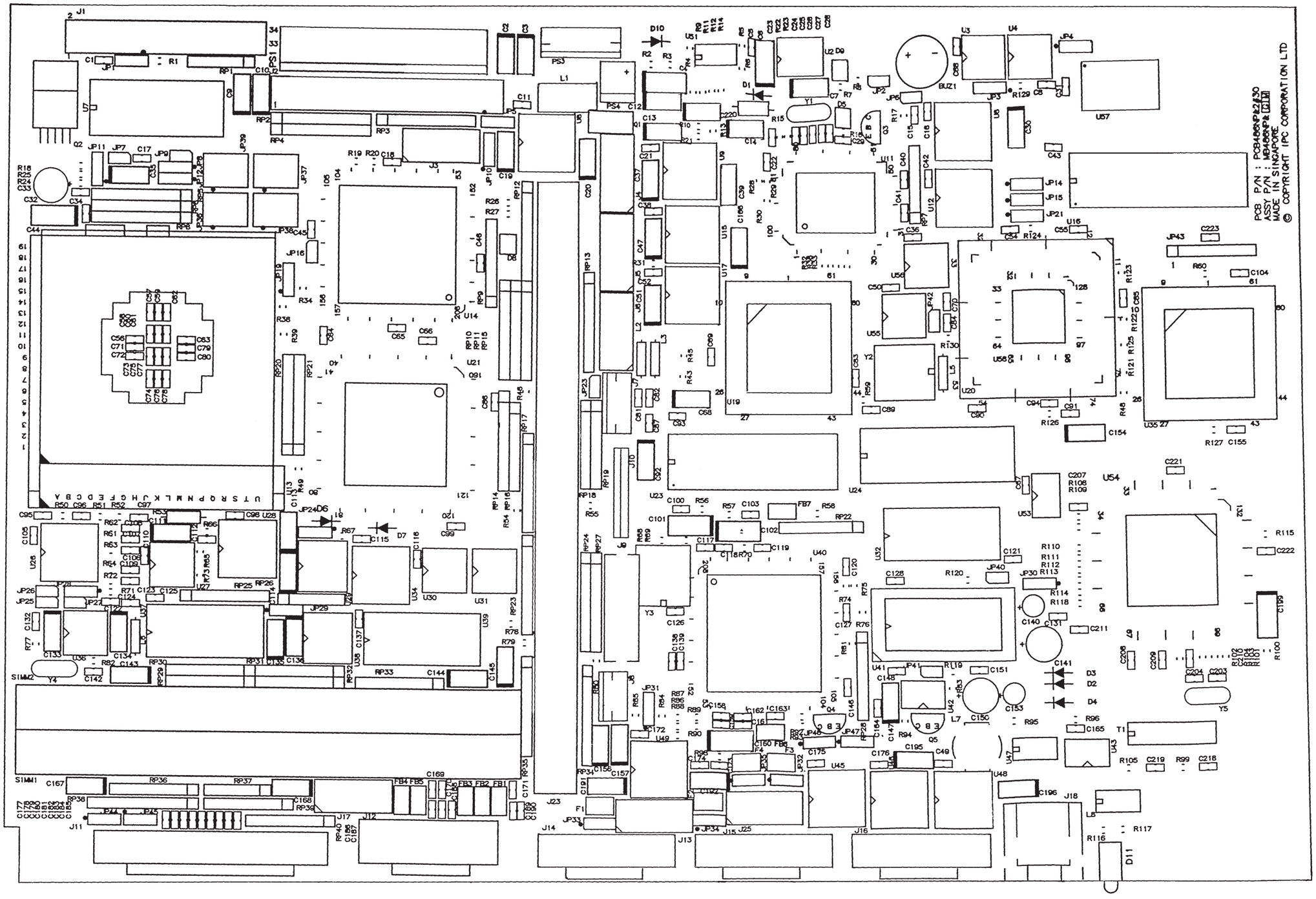


11-4. MCR CONTROL PCB

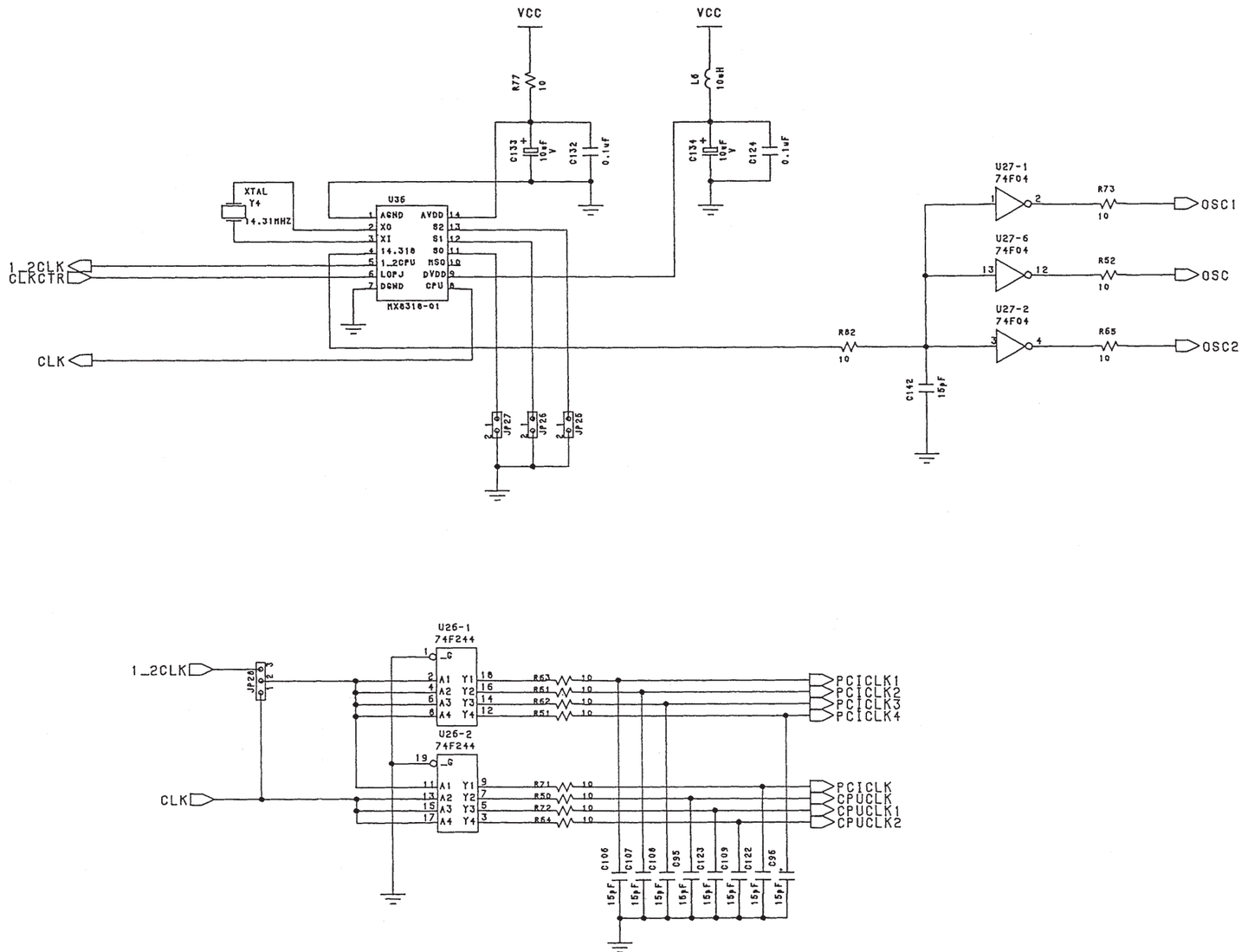


12. CIRCUIT DIAGRAM

Board Name	Drawing No.	Model
Motherboard (SA-5000/5100) 1-22	SCH-0160-01	SA-5000/5100
Printer controller without buffer	EBL-0329	SA-5000
Printer controller with buffer	EBL-0387	SA-5000
Printer controller (1/2)		SA-5100
Printer controller (2/2)		SA-5100
Keyboard controller (1/3)	EBL-0317	SA-5000/5100
Keyboard controller (2/3)	EBL-0317	SA-5000/5100
Keyboard controller (3/3)	EBL-0317	SA-5000/5100
Keyboard matrix	EBK-0146	SA-5000/5100
Key position	EBK-0147	SA-5000/5100
Display control (1/2)	EAL-0315	SA-5061D
Display control (2/2)	EAL-0315	SA-5061D
Display control (1/2)	EAL-0327	SA-5062DH
Display control (2/2)	EAL-0327	SA-5062DH
Drawer circuit	EAC-0065	SA-5000/5100
Power supply circuit	KCM150-51C	SA-5000/5100
MCR controller	EAL-0328	SA-5000/5100
Cable wiring		SA-5000
Cable wiring		SA-5100

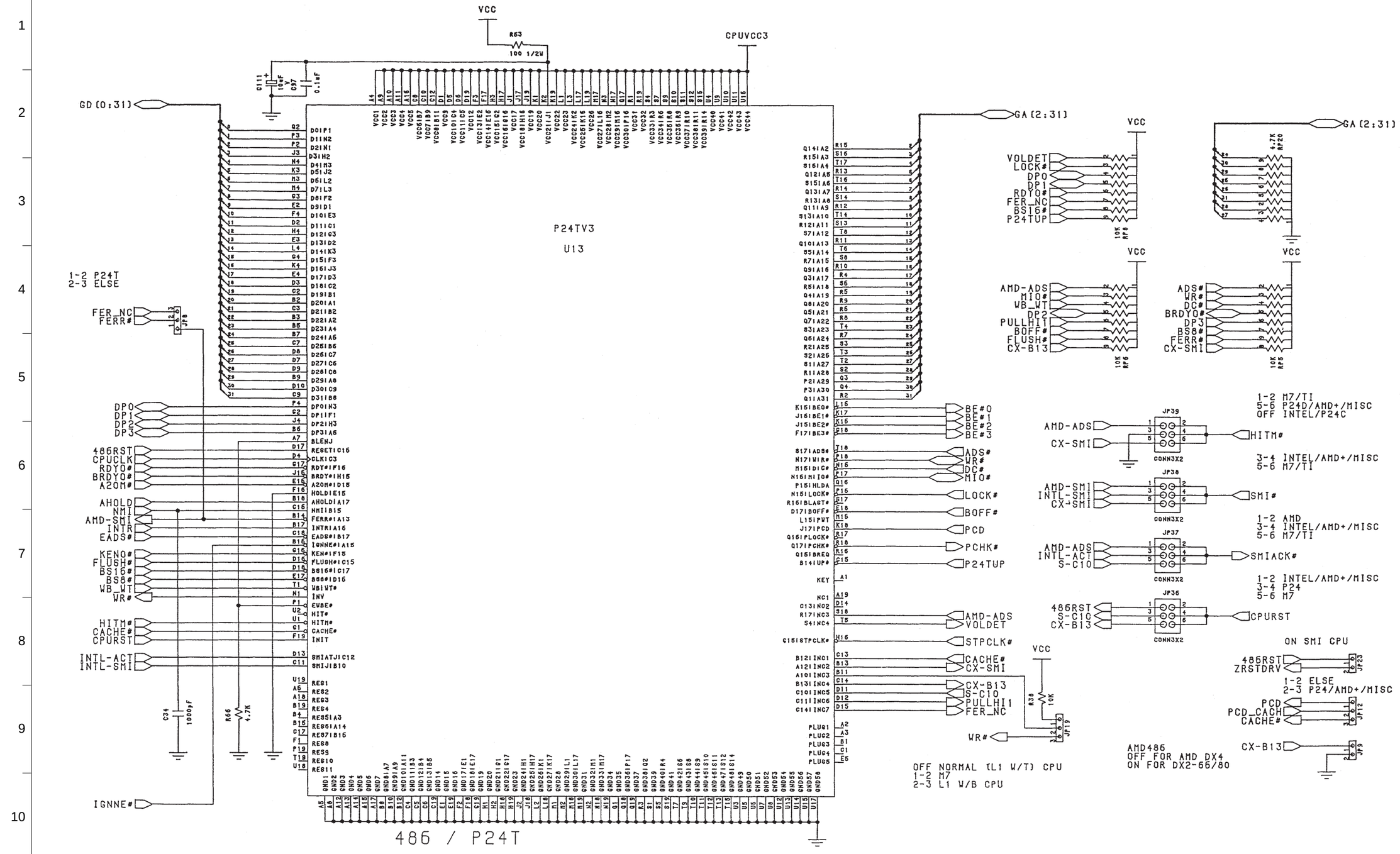


Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (1/22)	SCH-0160-01

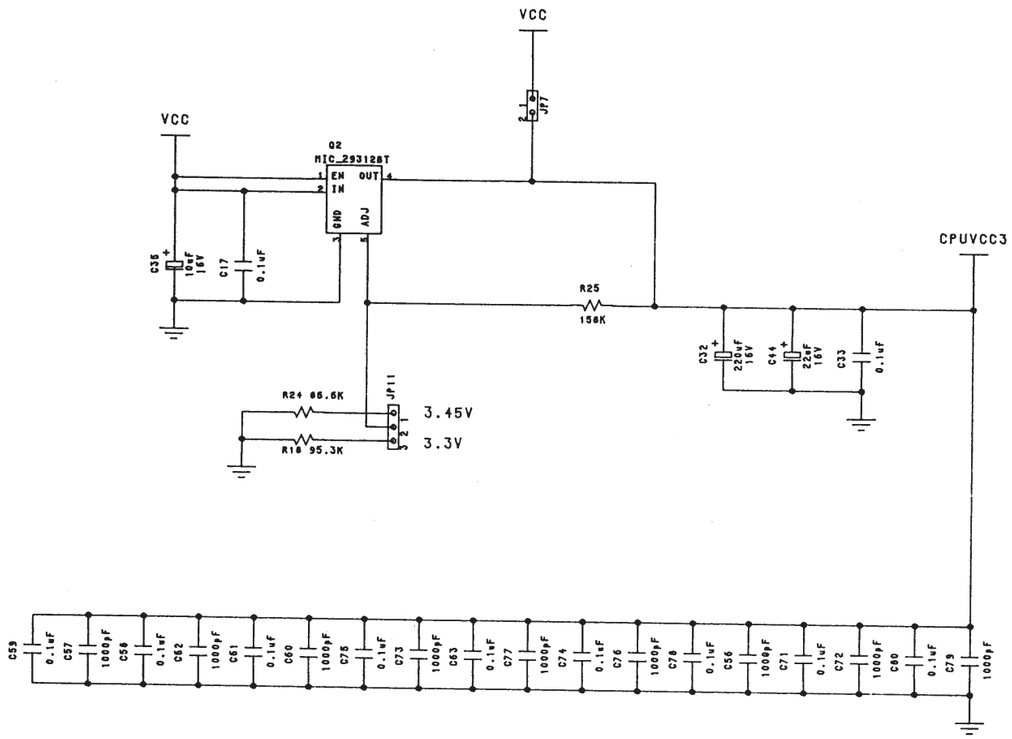


CLOCK CIRCUIT

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (2/22)	SCH-0160-01



Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (3/22)	SCH-0160-01



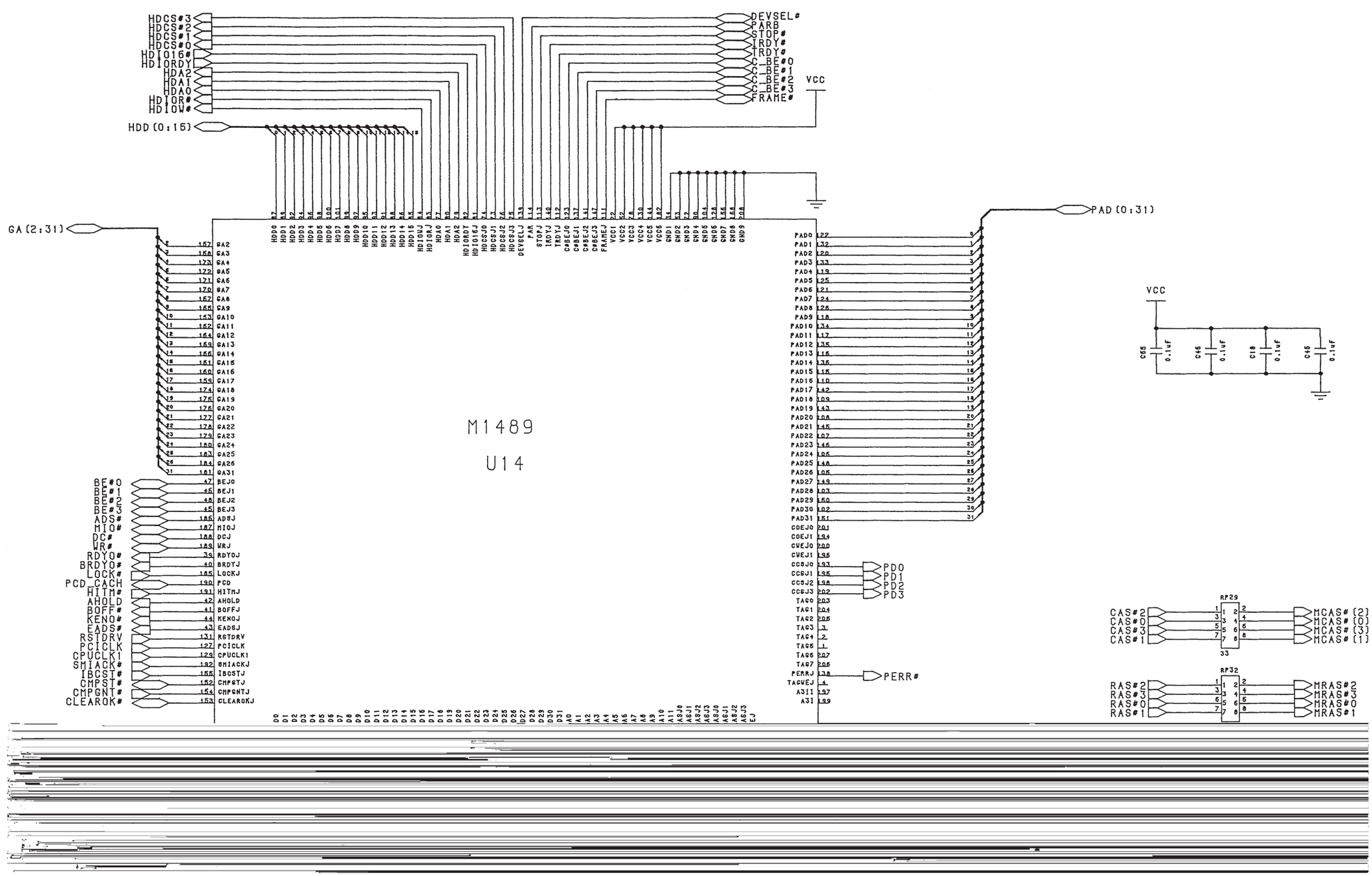
CPU POWER CIRCUIT

	486DX	P24C	P24D	P24T	M7	AMD+/MISC	TI	AMD
FERR JP8	2 - 3 C14	2 - 3 C14	2 - 3 C14	1 - 2 A13	2 - 3 C14	2 - 3 C14	2 - 3 C14	2 - 3 C14
PCD_CACH JP12	1 - 2 J17	1 - 2 J17	2 - 3 B12	2 - 3 B12	1 - 2 J17	2 - 3 B12	1 - 2 J17	2 - 3 B12
SMI JP36	3 - 4 B10	3 - 4 B10	3 - 4 B10	3 - 4 B10	5 - 6 A12	3 - 4 B10	5 - 6 A12	3 - 4 B10
SMIACT JP37	C - 12 3 - 4	3 - 4 C12	3 - 4 C12	3 - 4 C12	5 - 6 C10	1 - 2 R17	5 - 6 C10	3 - 4 C12
CPURST JP38	1 - 2 C16	3 - 4 C10	3 - 4 C10	3 - 4 C10	5 - 6 B13	1 - 2 C16	1 - 2 C16	1 - 2 C16
ZRSTDRV JP23	OFF X	ON C16	ON C16	ON C16	ON C16	ON C16	OFF X	ON C16
HITMJ JP39	OFF X	OFF X	5 - 6 A12	OFF X	1 - 2 R17	5 - 6 A12	1 - 2 R17	5 - 6 A12
JP19	OFF	OFF	2 - 3	OFF	1 - 2	2 - 3	OFF	2 - 3

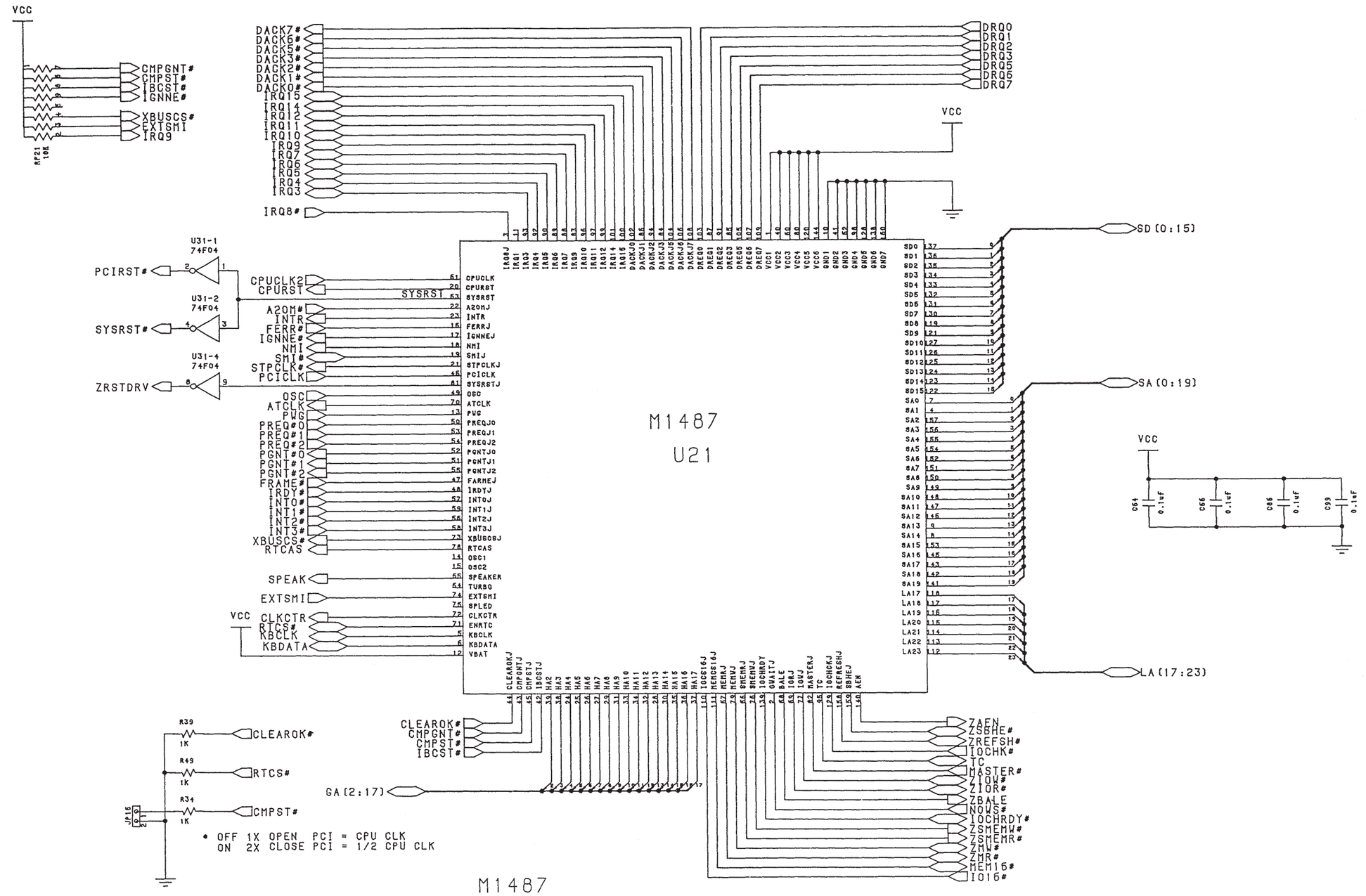
CPU VCC ADJUST PARAMETER TABLE

158K	95.3K	3.30V
158K	86.6K	3.45V

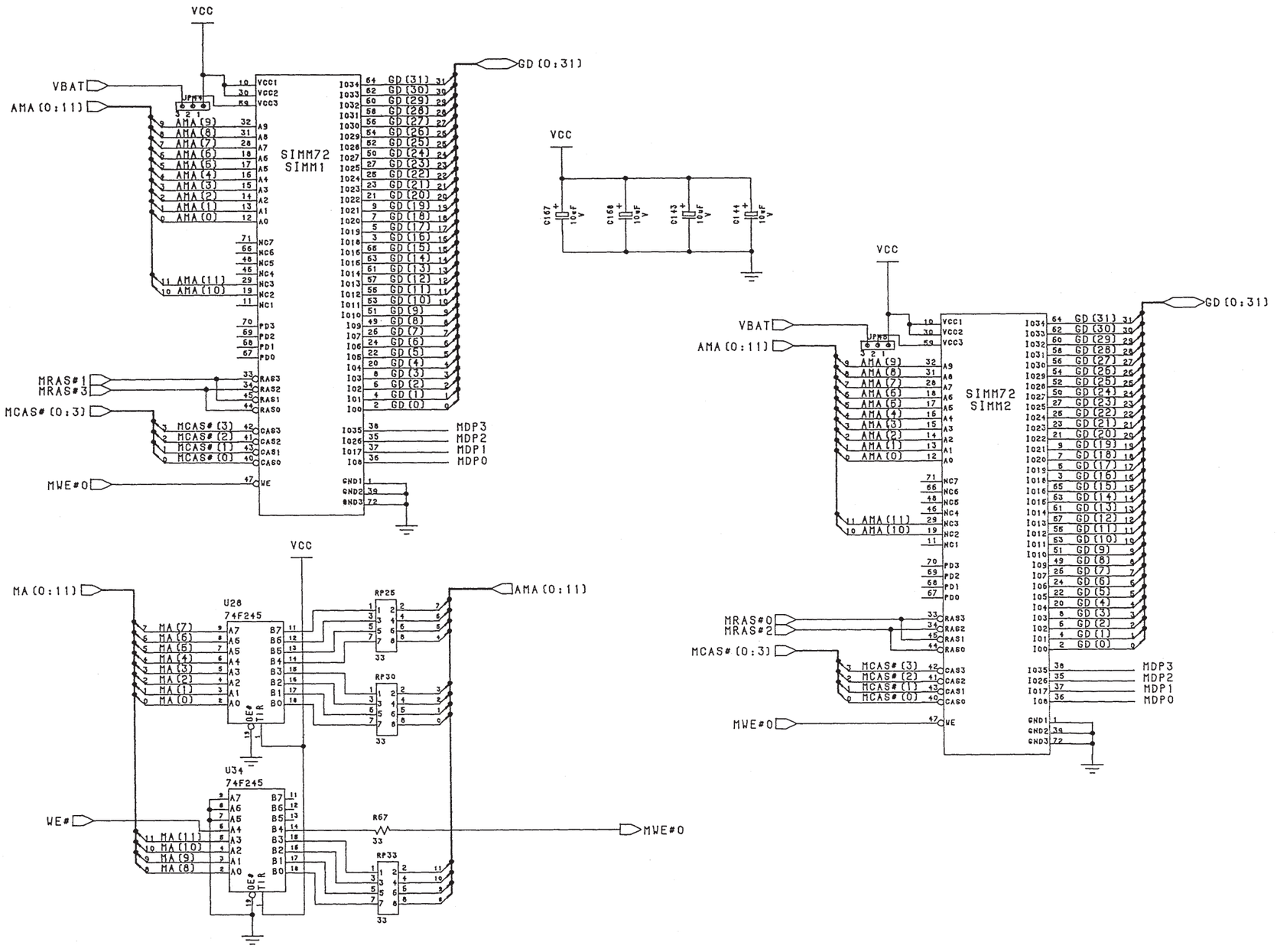
Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (4/22)	SCH-0160-01



Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (5/22)	SCH-0160-01

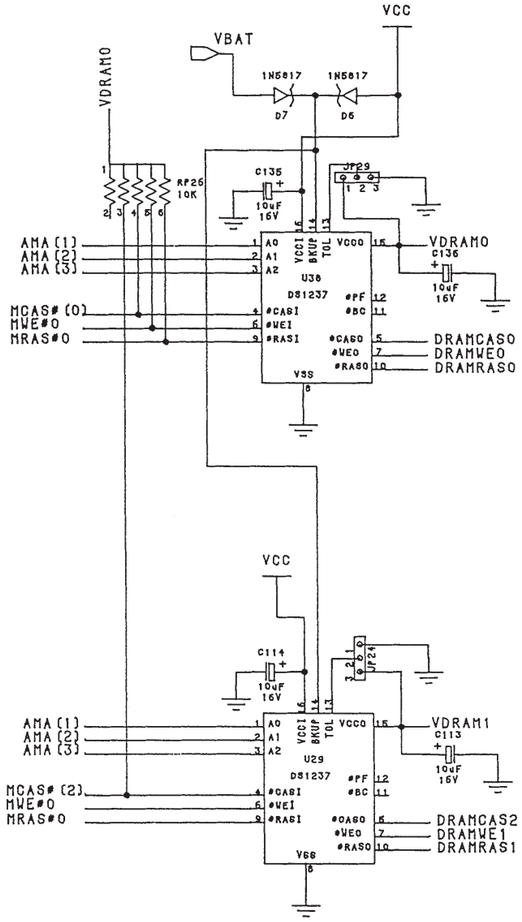


Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (6/22)	SCH-0160-01



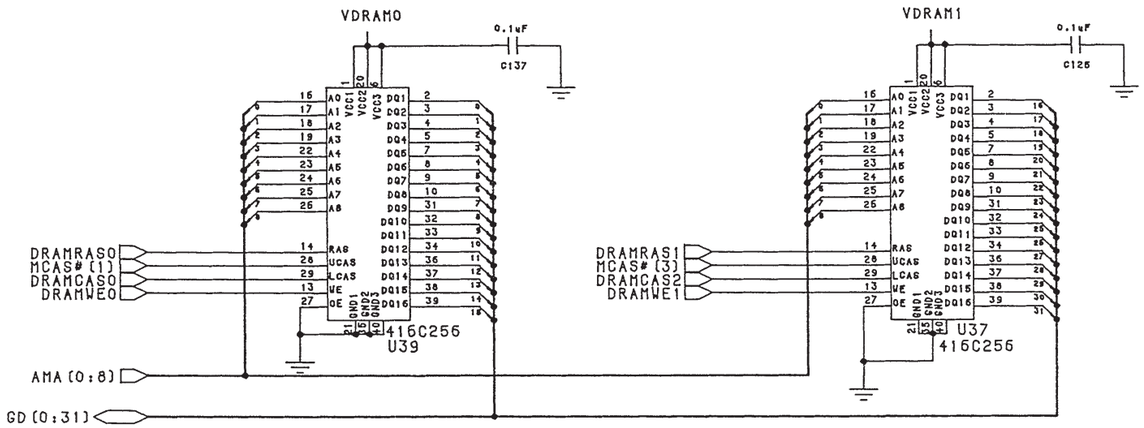
SIMM DRAM MODULE

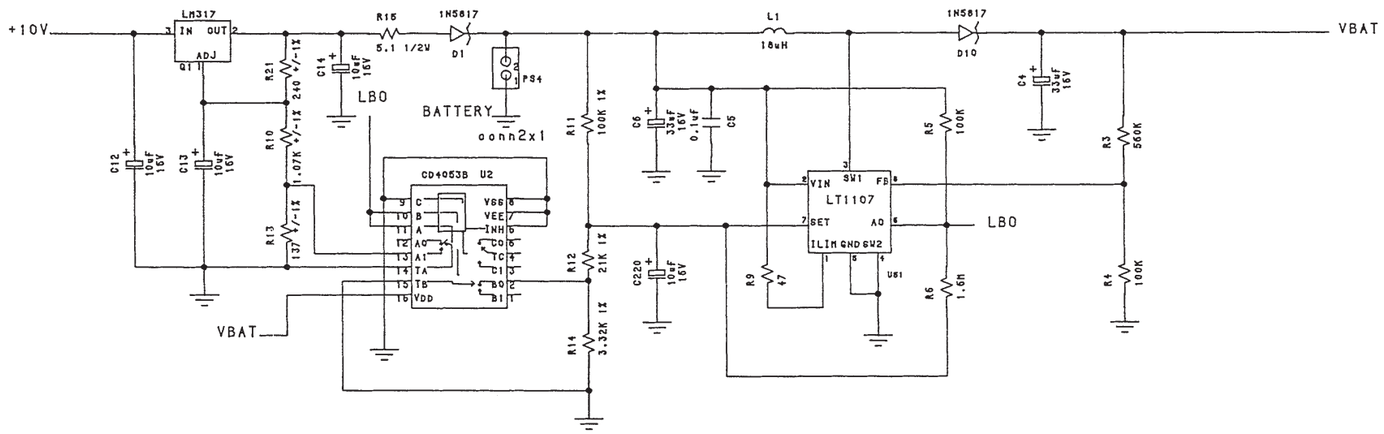
Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (7/22)	SCH-0160-01



NON-VOLATISER

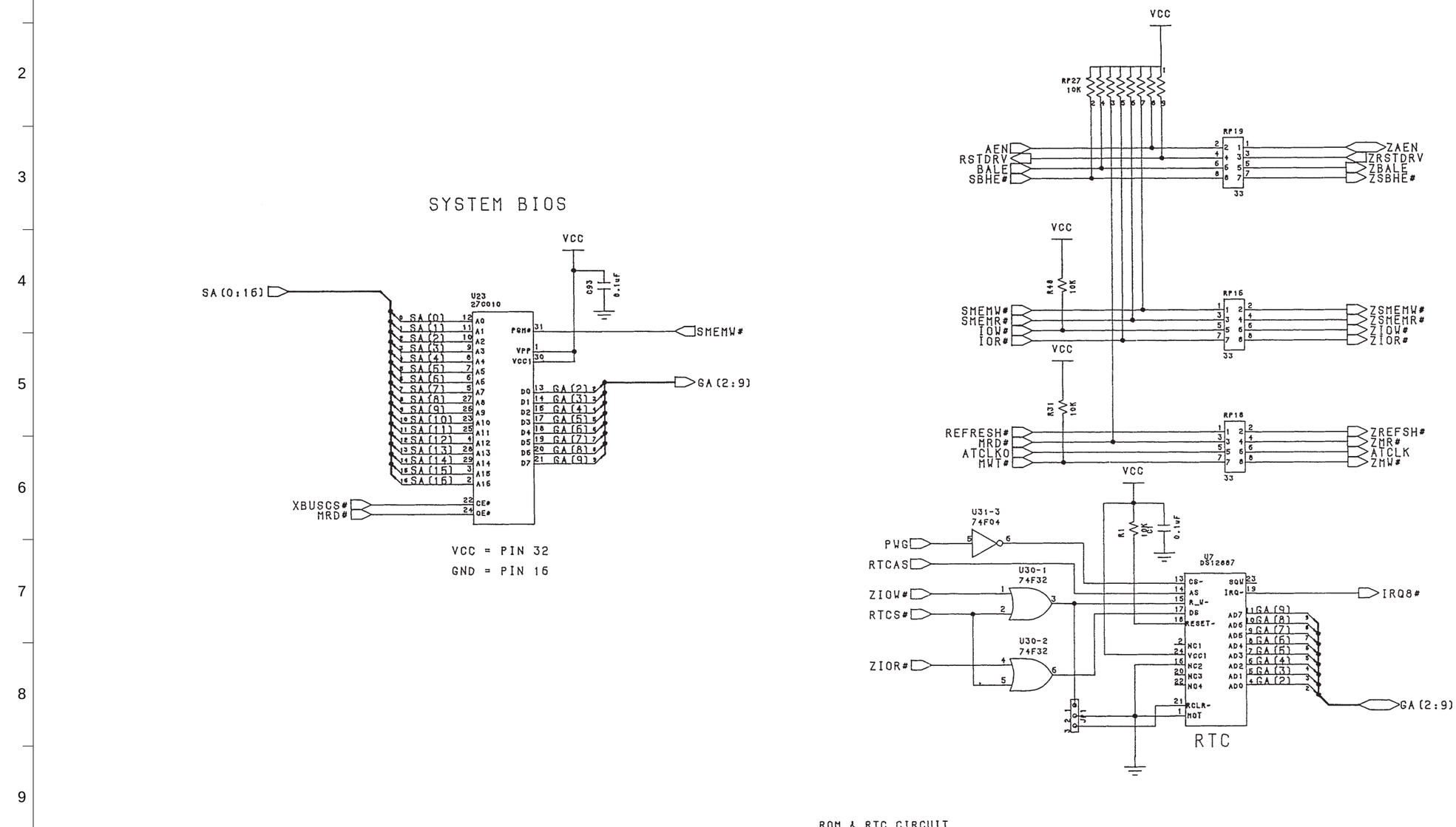
* FOR NEXPOS PRO ONLY





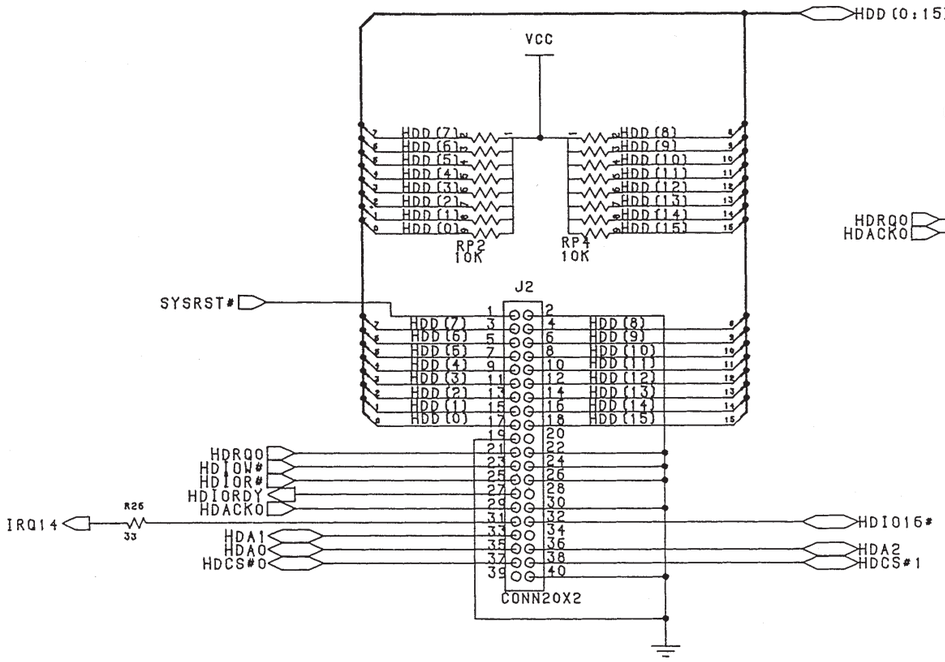
BATTERY CHARGING CIRCUIT

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (8/22)	SCH-0160-01

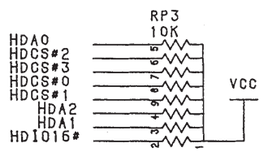


ROM & RTC CIRCUIT

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (9/22)	SCH-0160-01

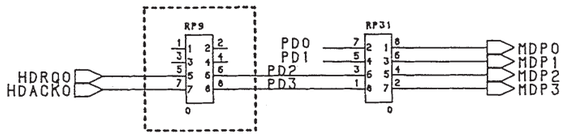


PRIMARY IDE CONNECTOR

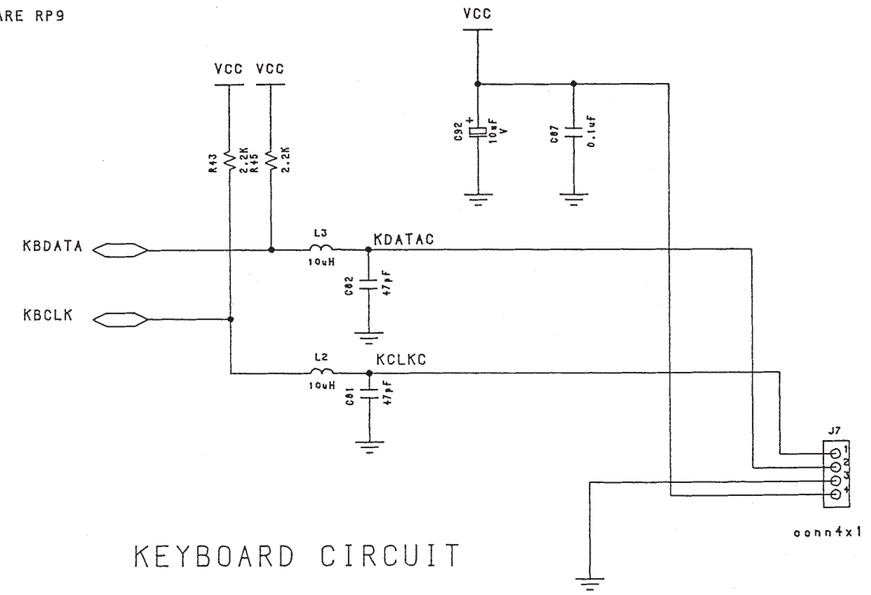


IDE CONN CIRCUIT

RESERVED FOR NEXT VER. IDE MASTER

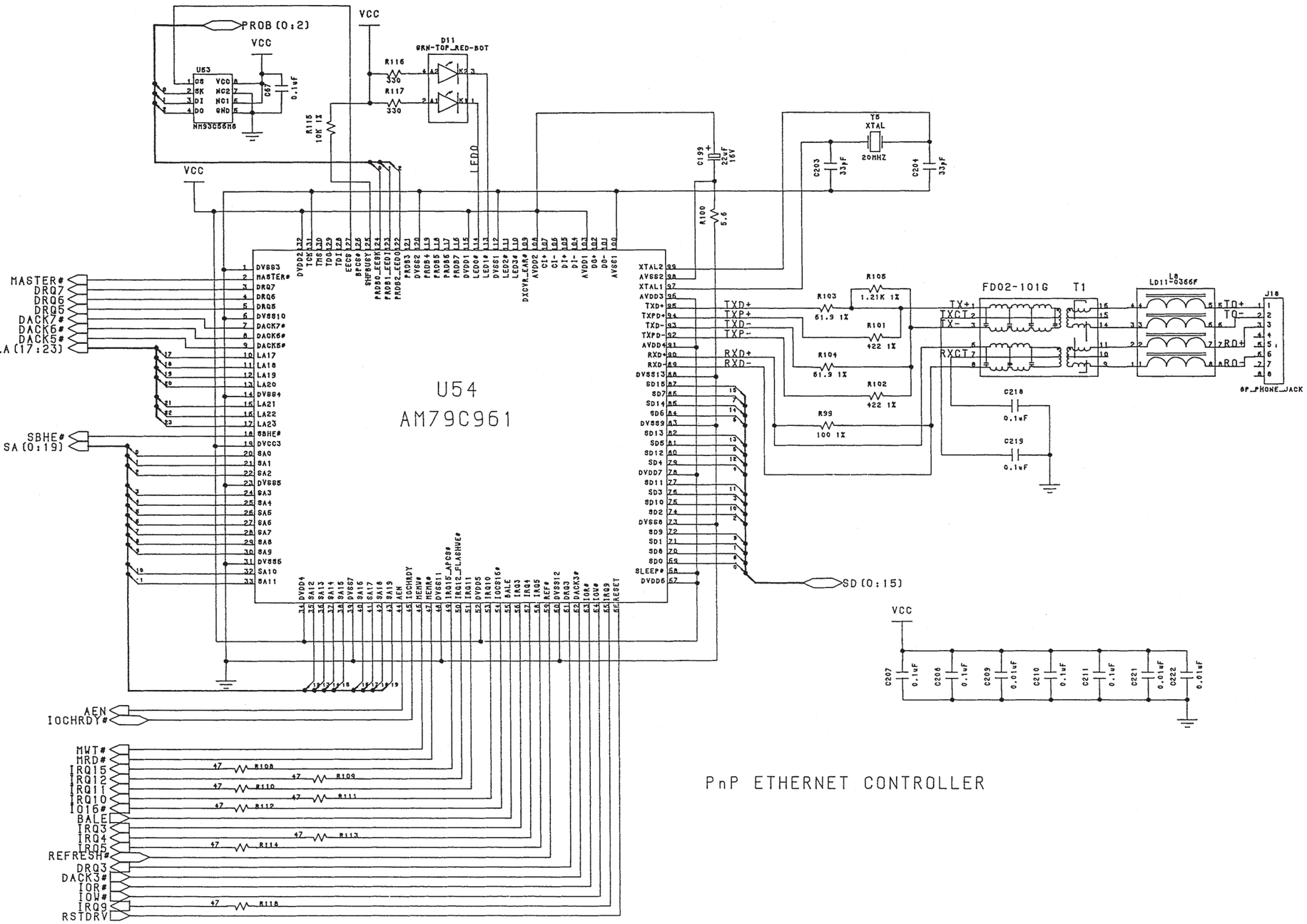


NOTE : DEFAULT USE RP31 SPARE RP9

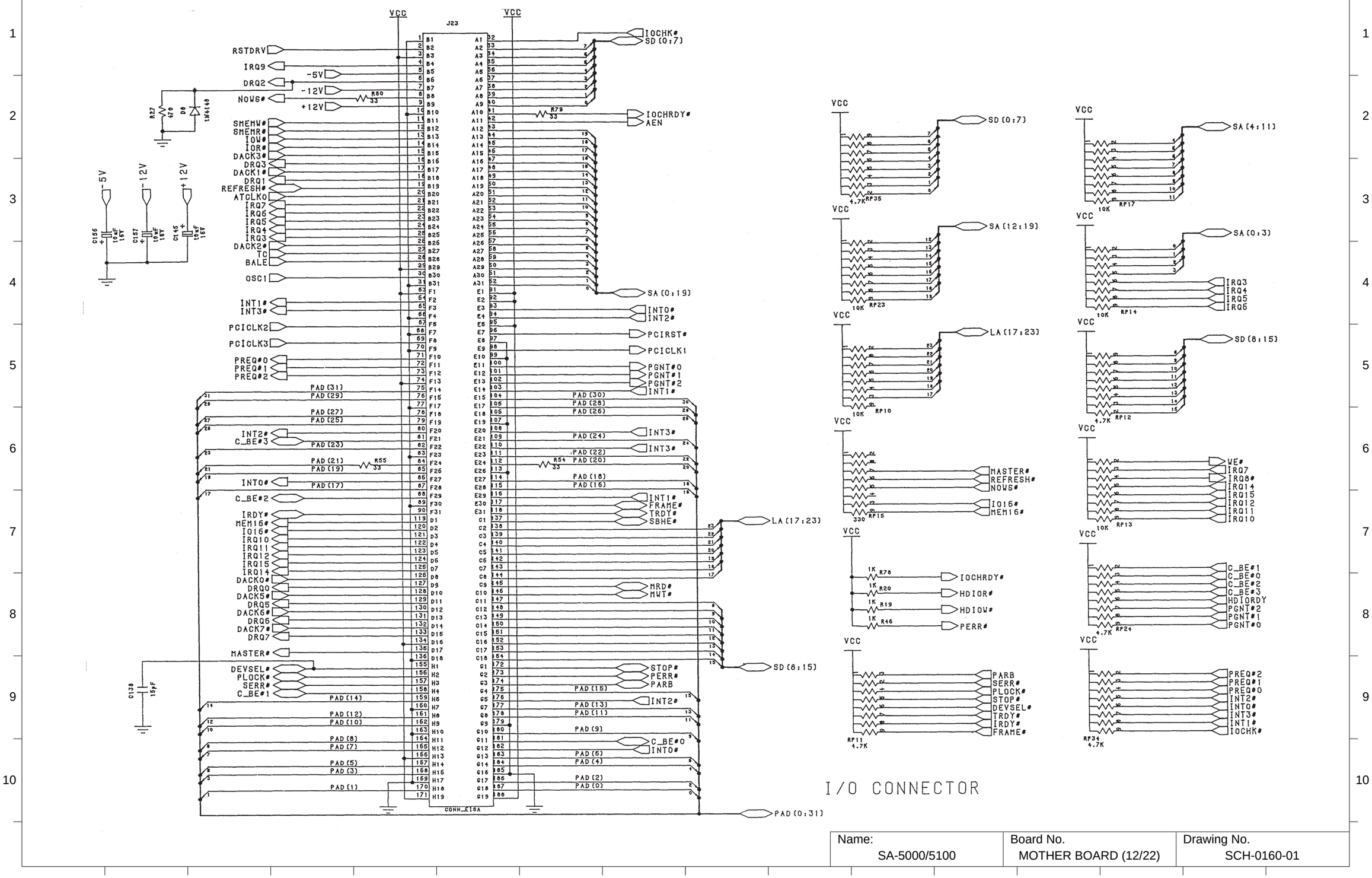


KEYBOARD CIRCUIT

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (10/22)	SCH-0160-01

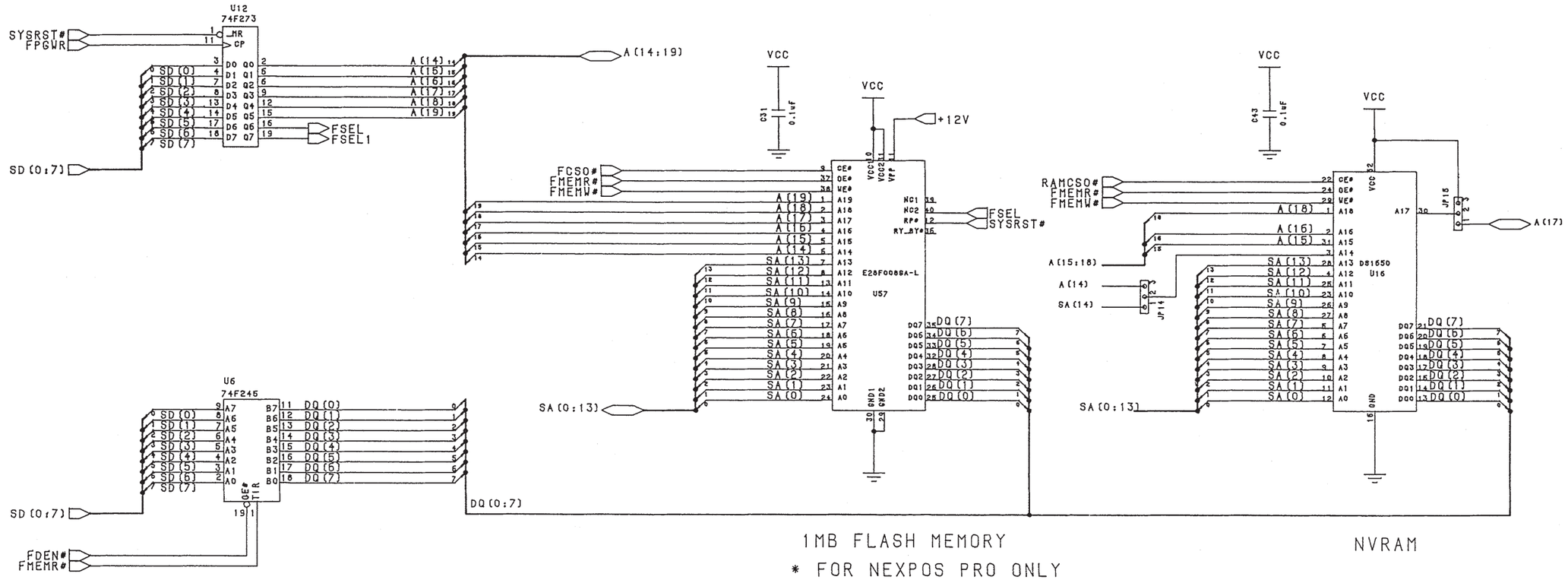


Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (11/22)	SCH-0160-01

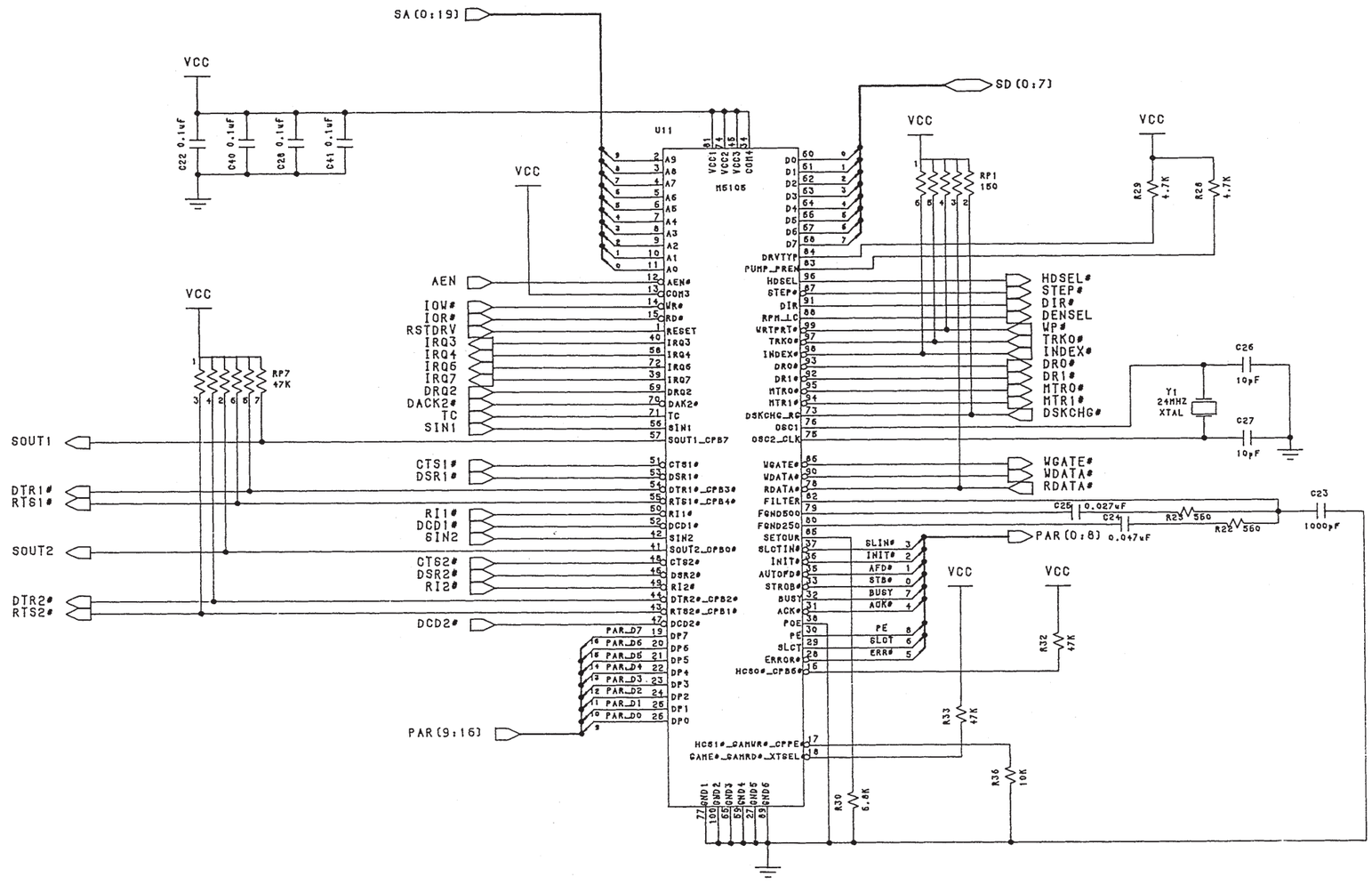


I/O CONNECTOR

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (12/22)	SCH-0160-01

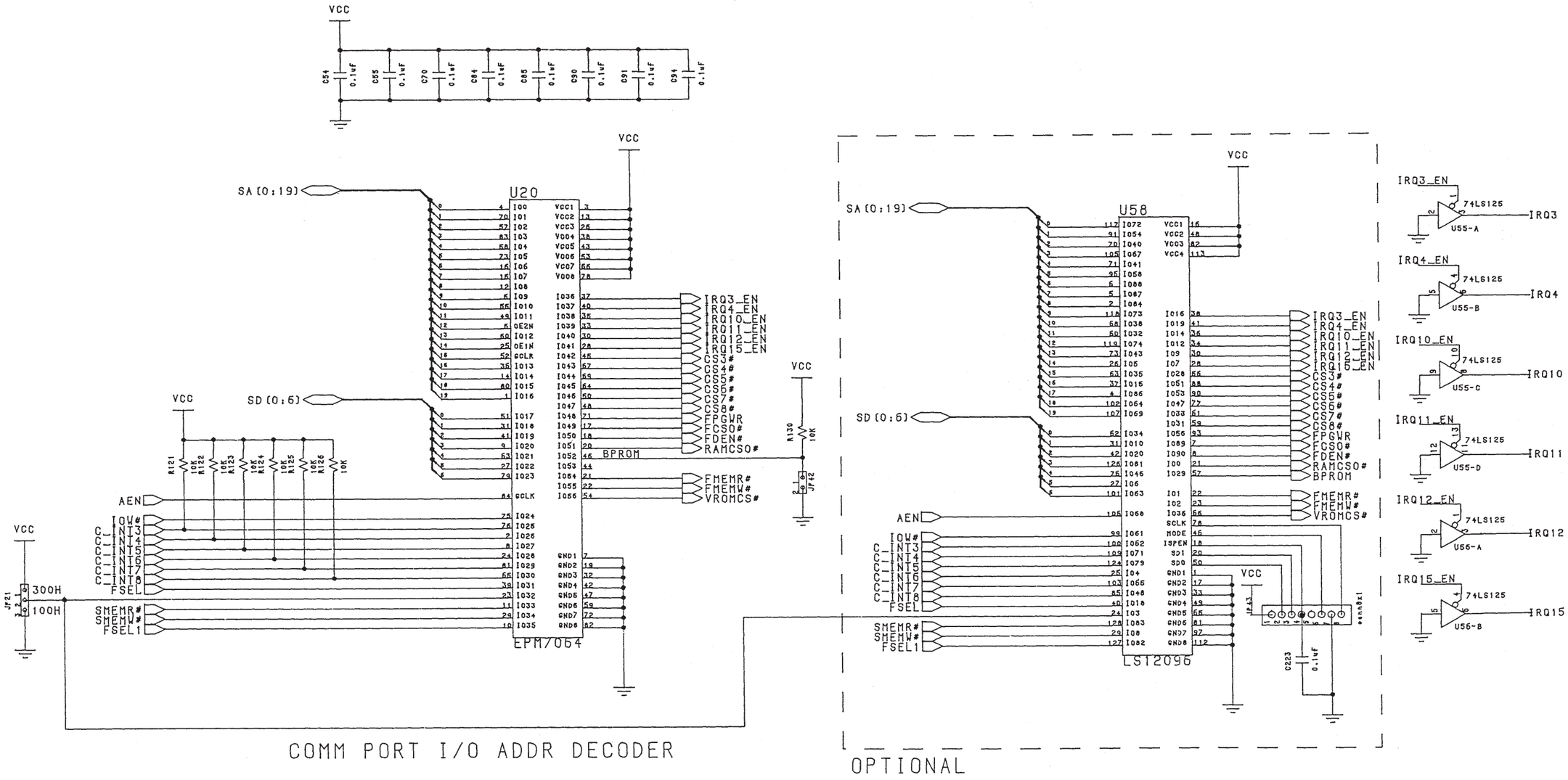


Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (13/22)	SCH-0160-01



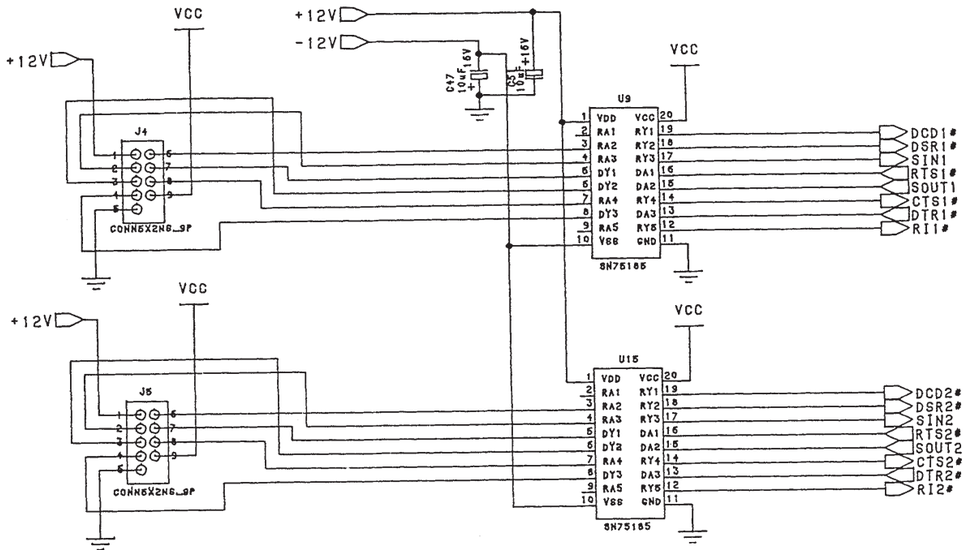
ALi5105 SIO

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (14/22)	SCH-0160-01

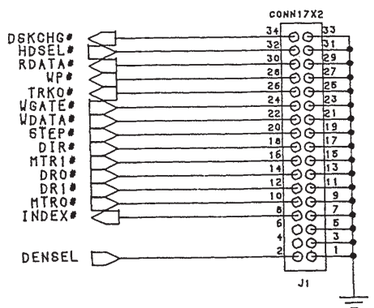


Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (15/22)	SCH-0160-01

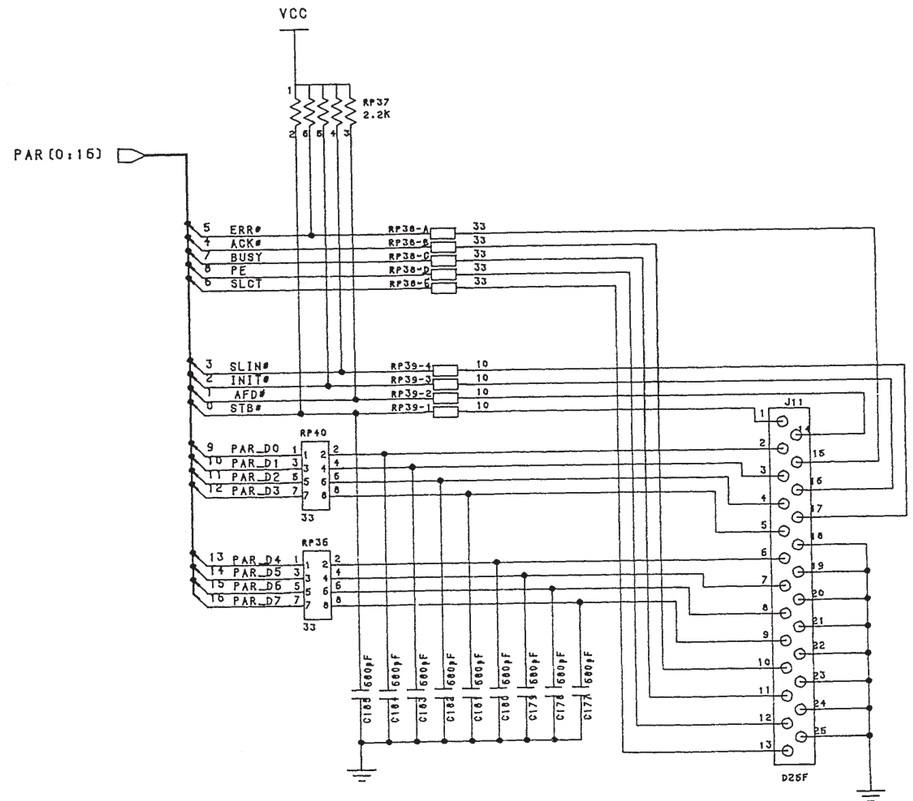
OPERATOR DISPLAY



CUSTOMER DISPLAY



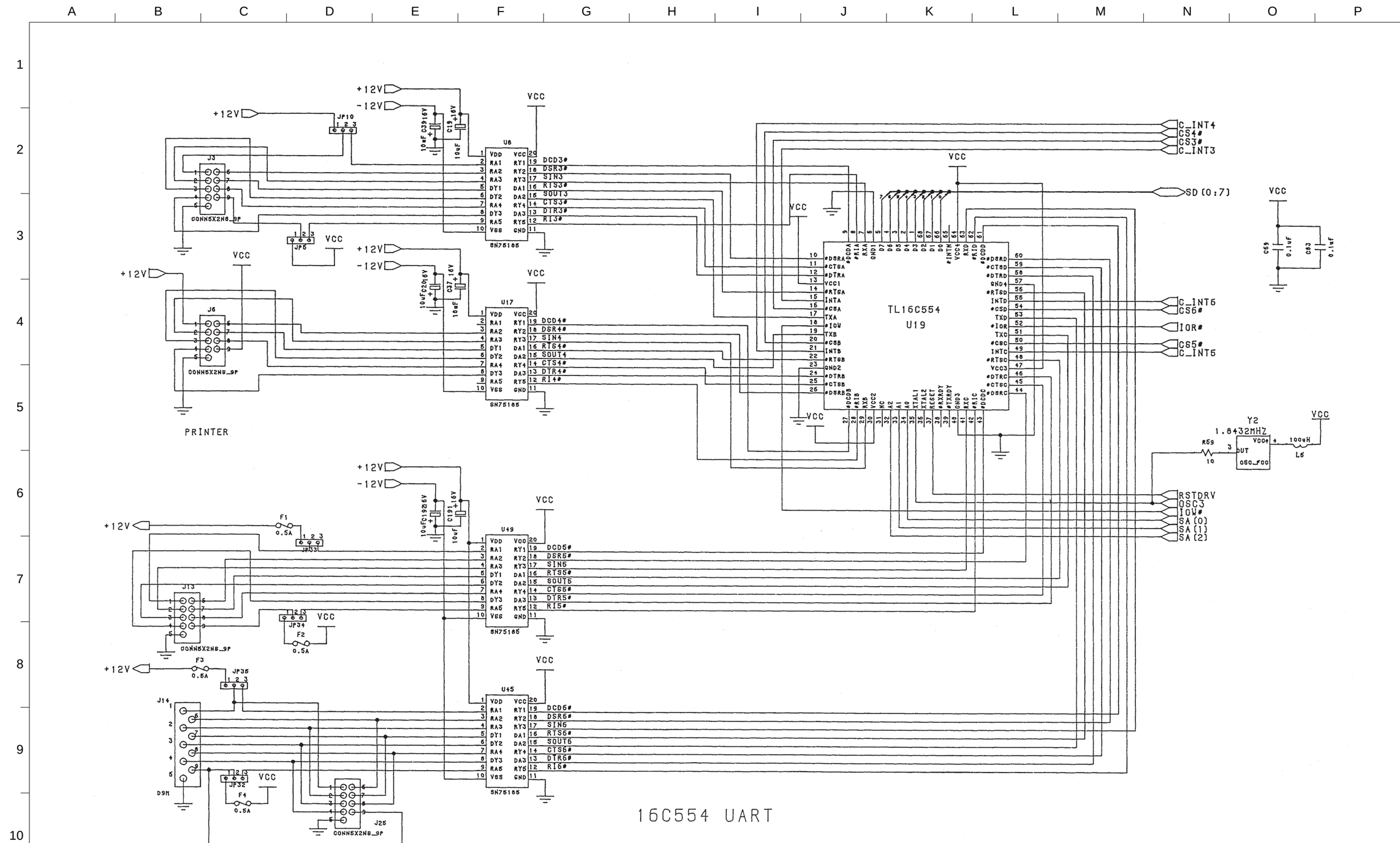
FLOPPY DRIVE CONNECTOR



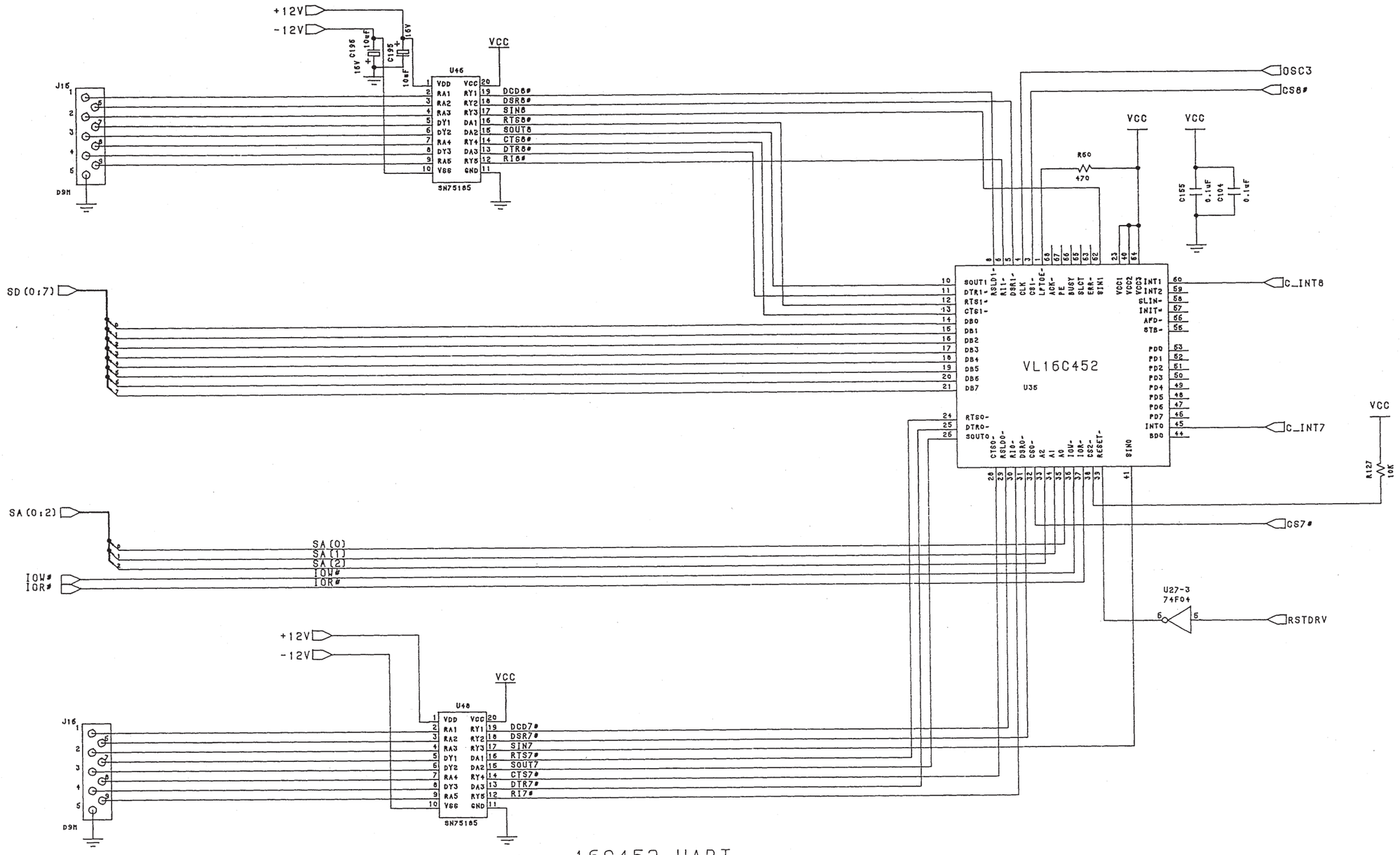
PARALLEL PORT

ALi5105 COM & PARALLEL PORTS & FDD INTERFACE

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (16/22)	SCH-0160-01

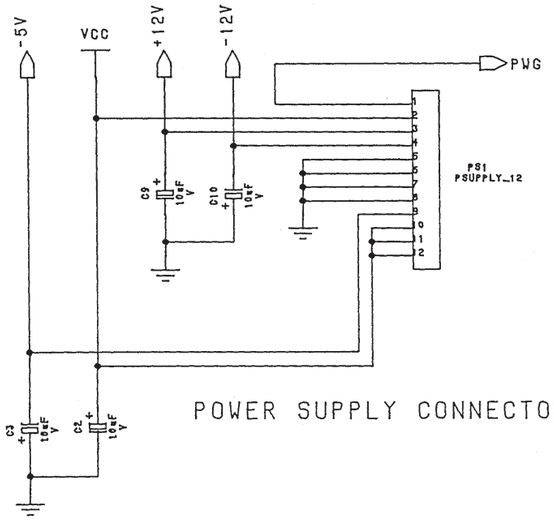


Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (17/22)	SCH-0160-01

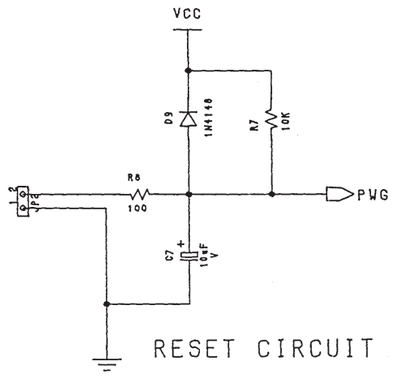


16C452 UART

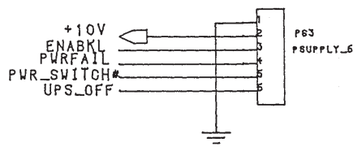
Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (18/22)	SCH-0160-01



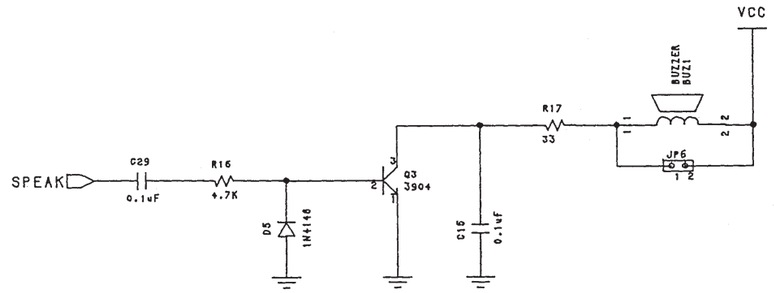
POWER SUPPLY CONNECTOR



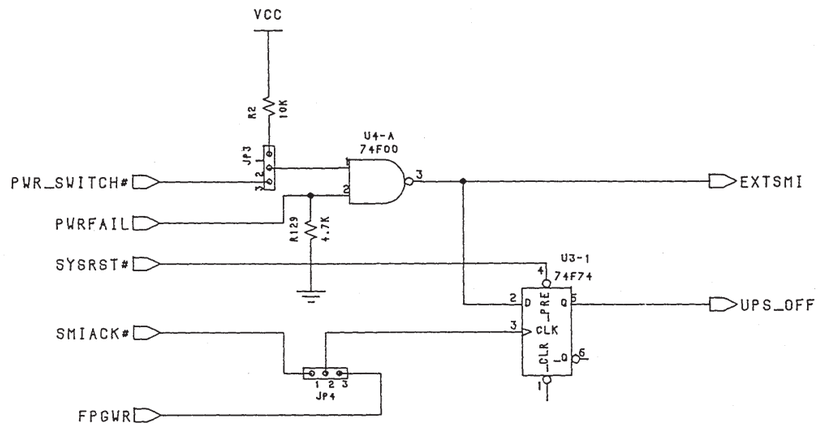
RESET CIRCUIT



UPS CONNECTOR

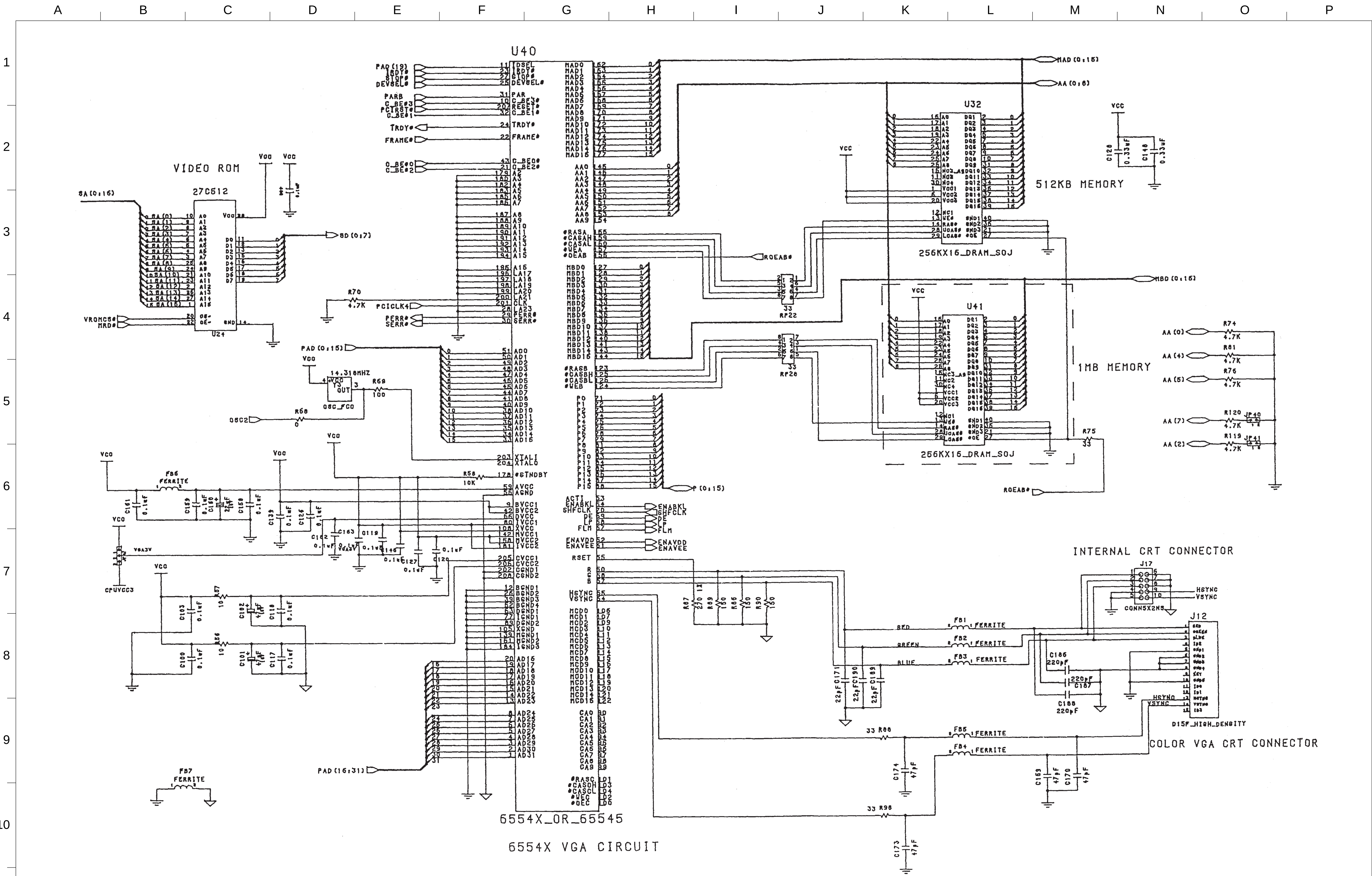


SPEAKER CIRCUIT

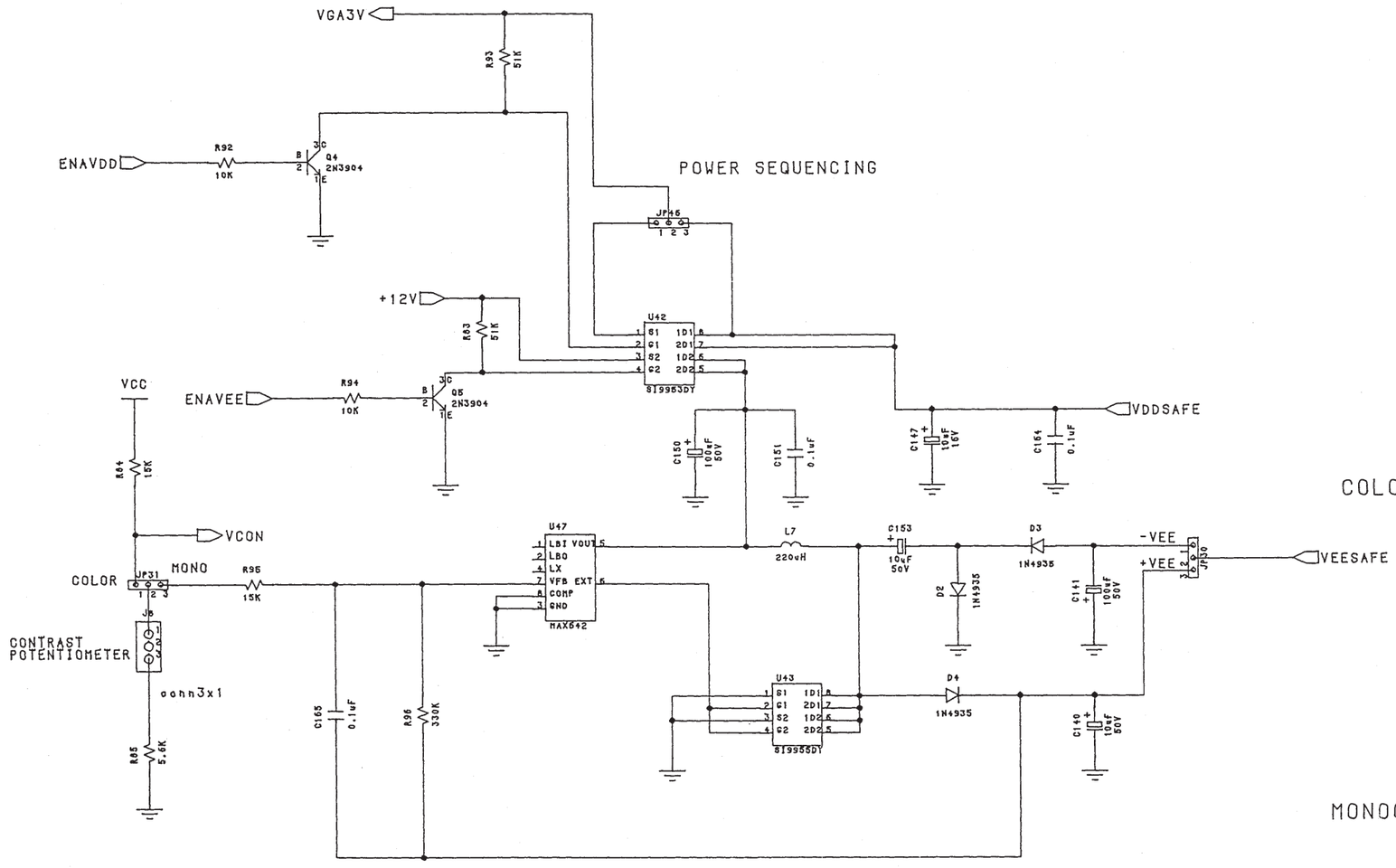


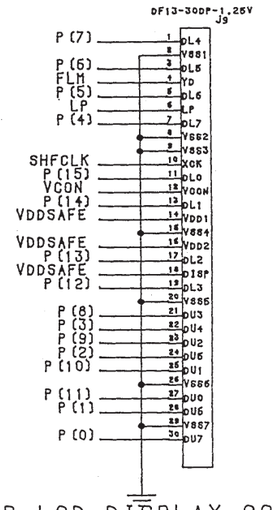
SMI LOGIC

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (19/22)	SCH-0160-01

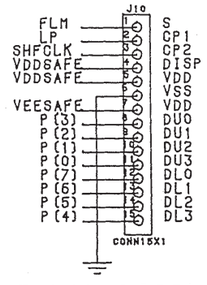

U40
6554X_OR_65545
6554X VGA CIRCUIT
VIDEO ROM
27C512
U24
SA(0:16)
SD(0:7)
VROMCS#
MRD#
PAD(0:15)
PAD(16:31)
14.318MHZ
OSC_FCO
OSC2
PCICLK4
PERR#
SERR#
TRDY#
FRAME#
U32
512KB MEMORY
256KX16_DRAM_SOJ
U41
1MB MEMORY
MAD(0:15)
AA(0:8)
MBD(0:15)
P(0:15)
ROEAB#
RP22
RP28
ENABKL
SHFCLK
DE
LP
FLM
ENAVDD
ENAVEE
INTERNAL CRT CONNECTOR
J17
CONN5X2NS
HSYNC
VSYNC
J12
D15F_HIGH_DENSITY
COLOR VGA CRT CONNECTOR
RED
GREEN
BLUE
FERRITE
CPUVCC3
VGA3V

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (20/22)	SCH-0160-01



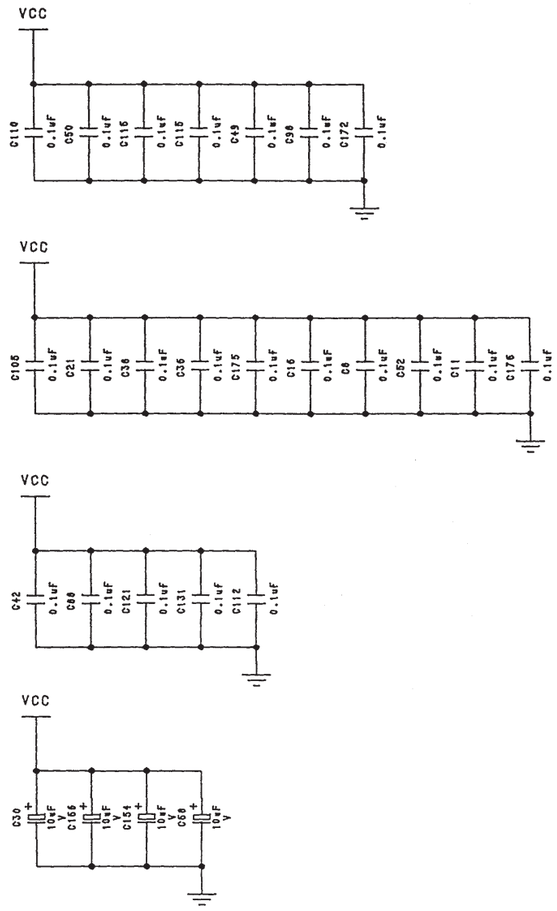


COLOR LCD DISPLAY CONNECTOR

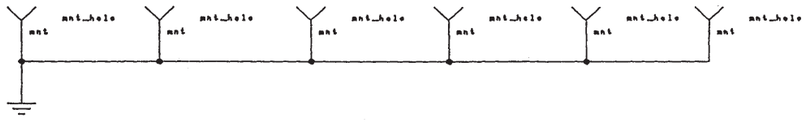


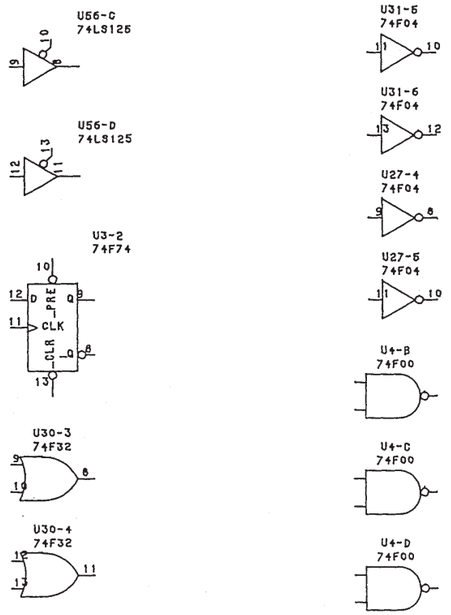
MONOCHROME LCD DISPLAY CONNECTOR

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (21/22)	SCH-0160-01



DECOUPLING CAPACITOR

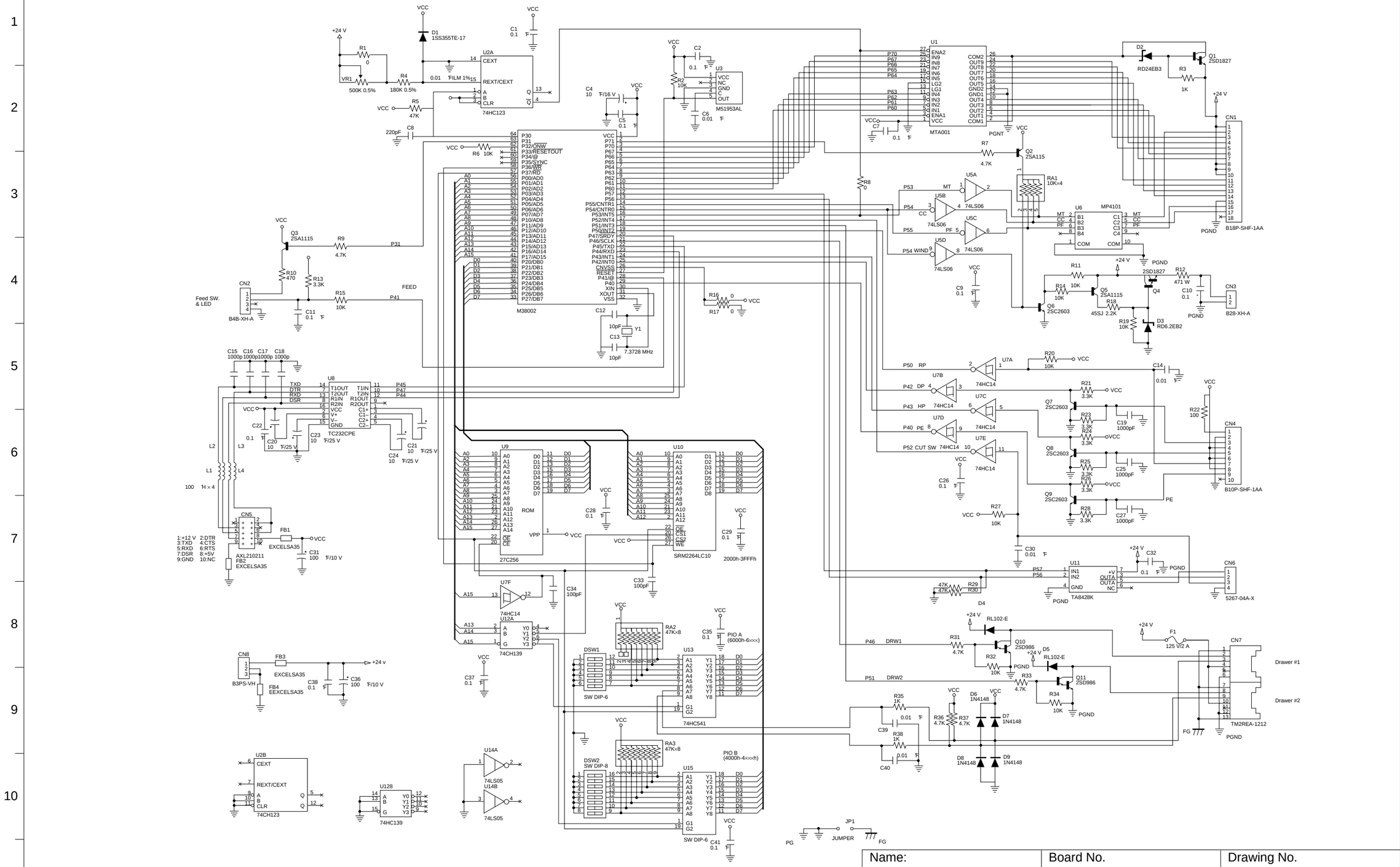


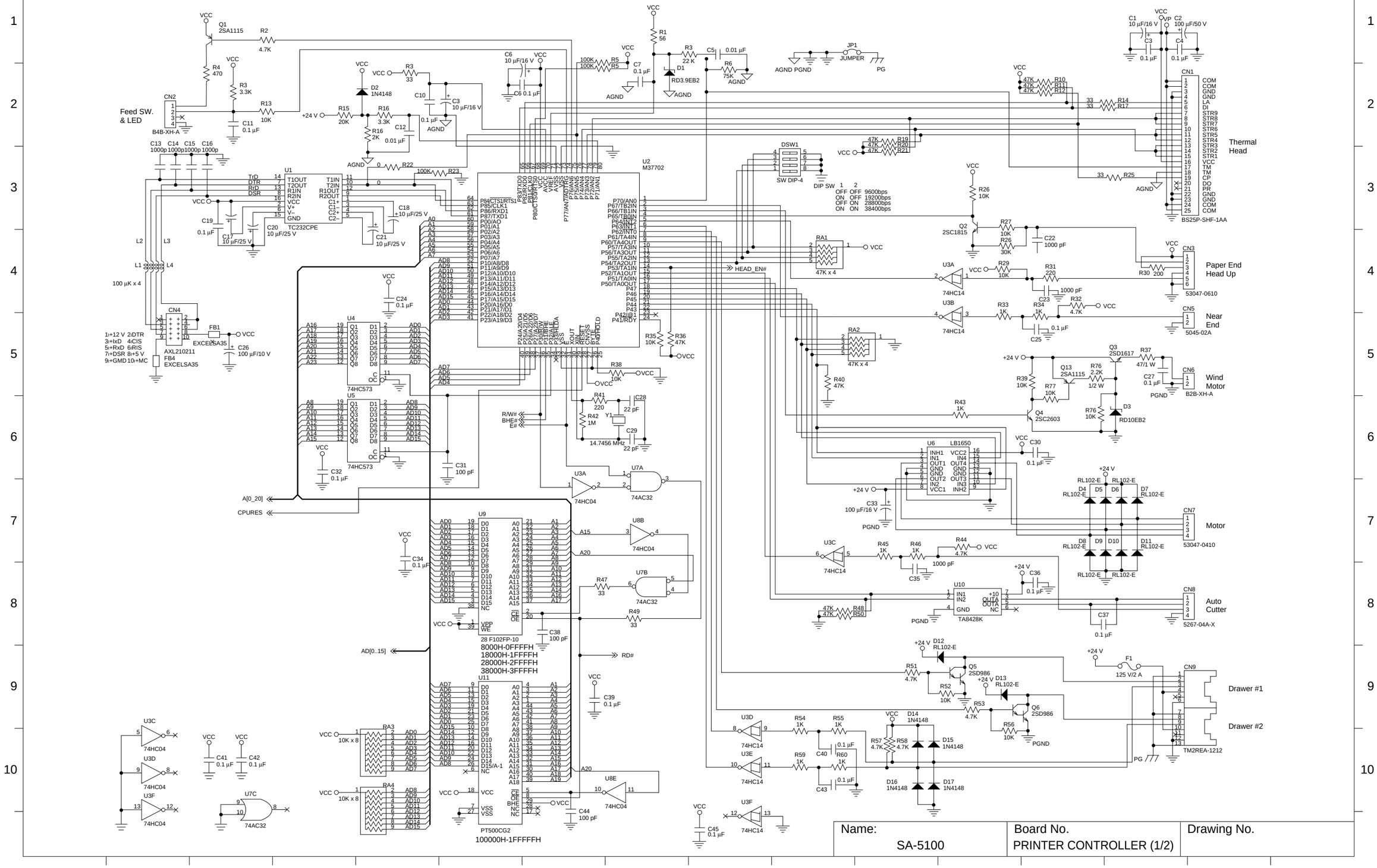


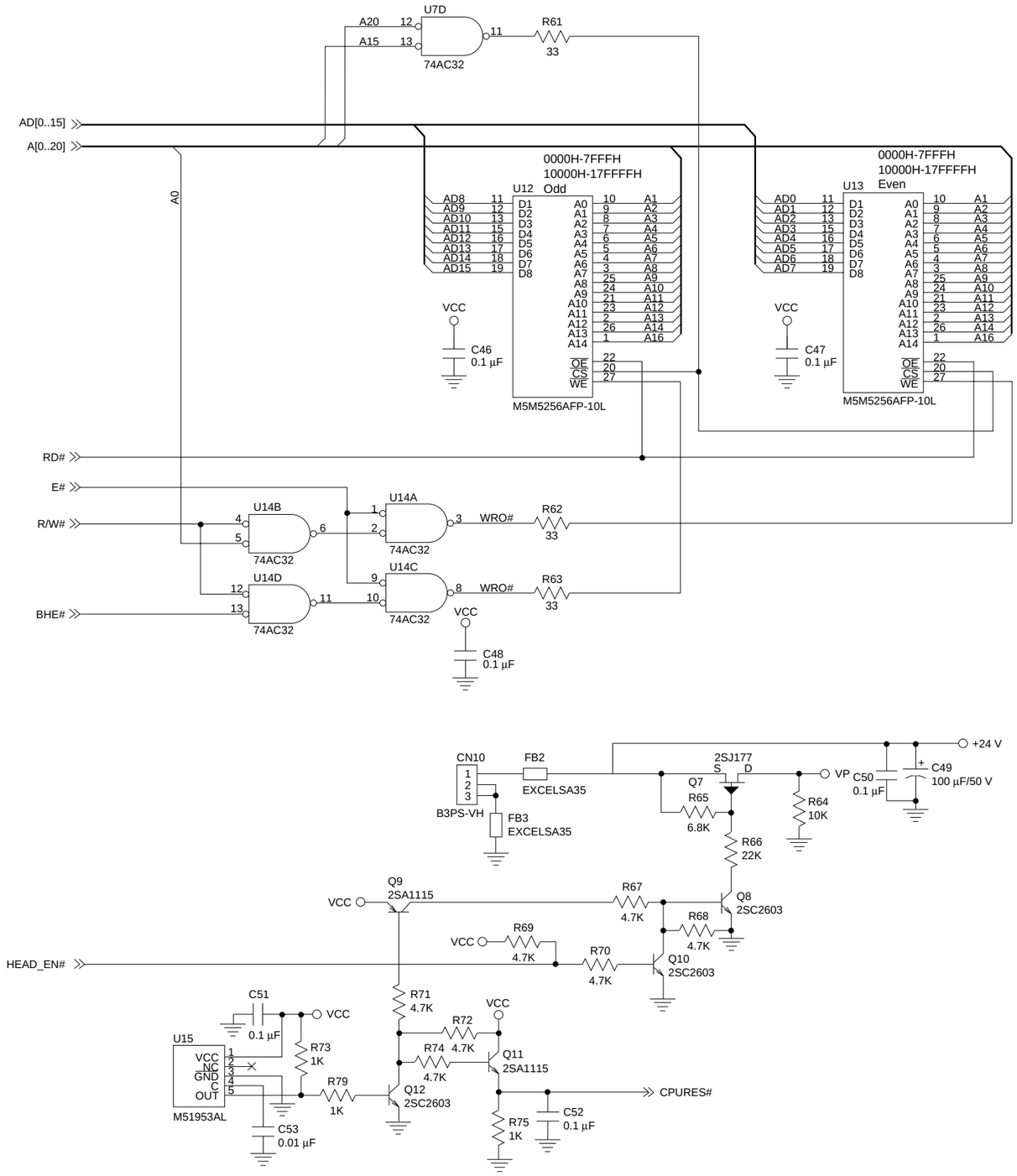
SPARE GATES

Name:	Board No.	Drawing No.
SA-5000/5100	MOTHER BOARD (22/22)	SCH-0160-01

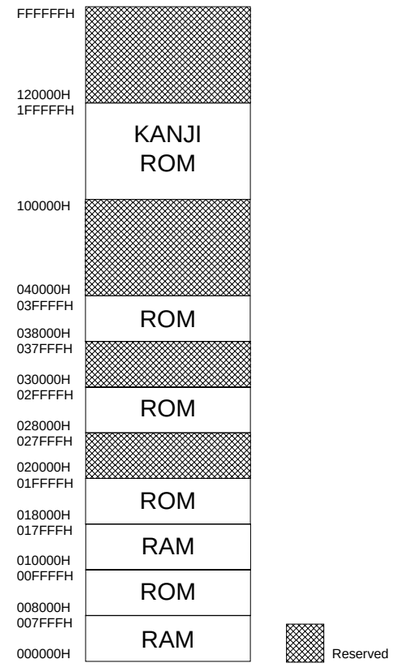
Name:	Board No.	Drawing No.
SA-5000	PRINTER CONTROLLER (1/1)	EBL-0329


Name:
SA-5000
Board No.
PRINTER CONTROLLER
Drawing No.
EBL-0387
Drawer #1
Drawer #2
Feed SW. & LED
FEED
M38002
27C256
SRM2264LC10
2000h-3FFFh
M51953AL
MTA001
MP4101
TA8428K
TC232CPE
74HC123
74HC14
74LS06
74LS05
74HC139
74HC541
SW DIP-6
SW DIP-8
PIO A (6000h-6×××)
PIO B (4000h-4×××h)
B4B-XH-A
B28-XH-A
B10P-SHF-1AA
B18P-SHF-1AA
B3PS-VH
5267-04A-X
TM2REA-1212
JUMPER
RD24EB3
RD6.2EB2
1SS355TE-17
2SA1115
2SC2603
2SD1827
2SD986
RL102-E
1N4148
EXCELSA35
EXCELSA
AXL210211
FB2
FB3
FB4
EEXCELSA35
+24 V
VCC
PGND
FG

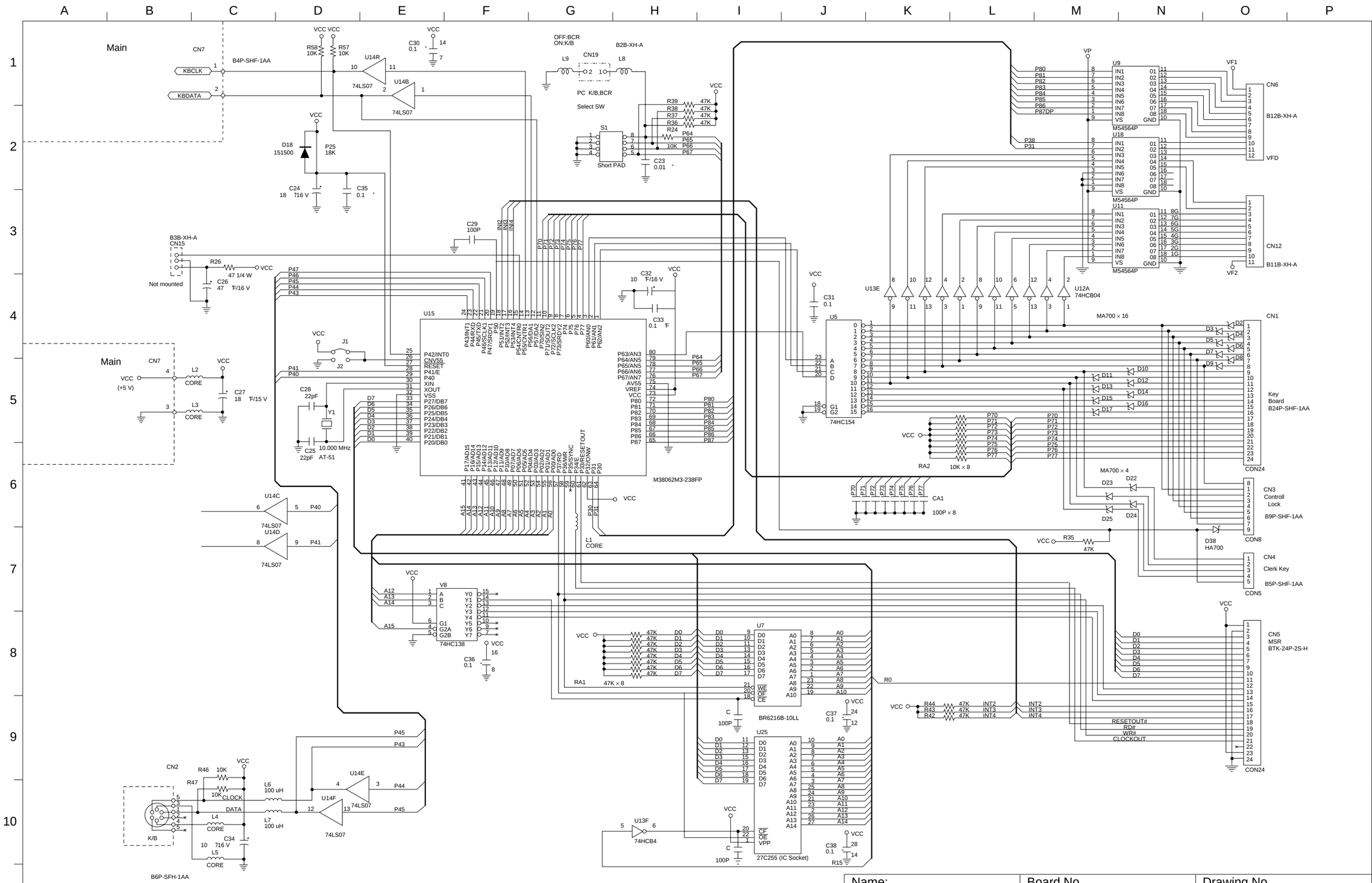

Feed SW.
& LED
B4B-XH-A
Thermal
Head
BS25P-SHF-1AA
Paper End
Head Up
53047-0610
Near
End
5045-02A
Wind
Motor
B2B-XH-A
Motor
53047-0410
Auto
Cutter
5267-04A-X
Drawer #1
Drawer #2
TM2REA-1212
TC232CPE
AXL210211
EXCELSA35
74HC573
74HC04
74AC32
74HC14
28 F102FP-10
8000H-0FFFFH
18000H-1FFFFH
28000H-2FFFFH
38000H-3FFFFH
PT500CG2
100000H-1FFFFH
TA8428K
LB1650
SW DIP-4
DIP SW 1 2
OFF OFF 9600bps
ON OFF 19200bps
OFF ON 28800bps
ON ON 38400bps
JUMPER
HEAD_EN#
A[0_20]
CPURES
AD[0..15]
RD#
R/W#
BHE#
E#
Name:
SA-5100
Board No.
PRINTER CONTROLLER (1/2)
Drawing No.



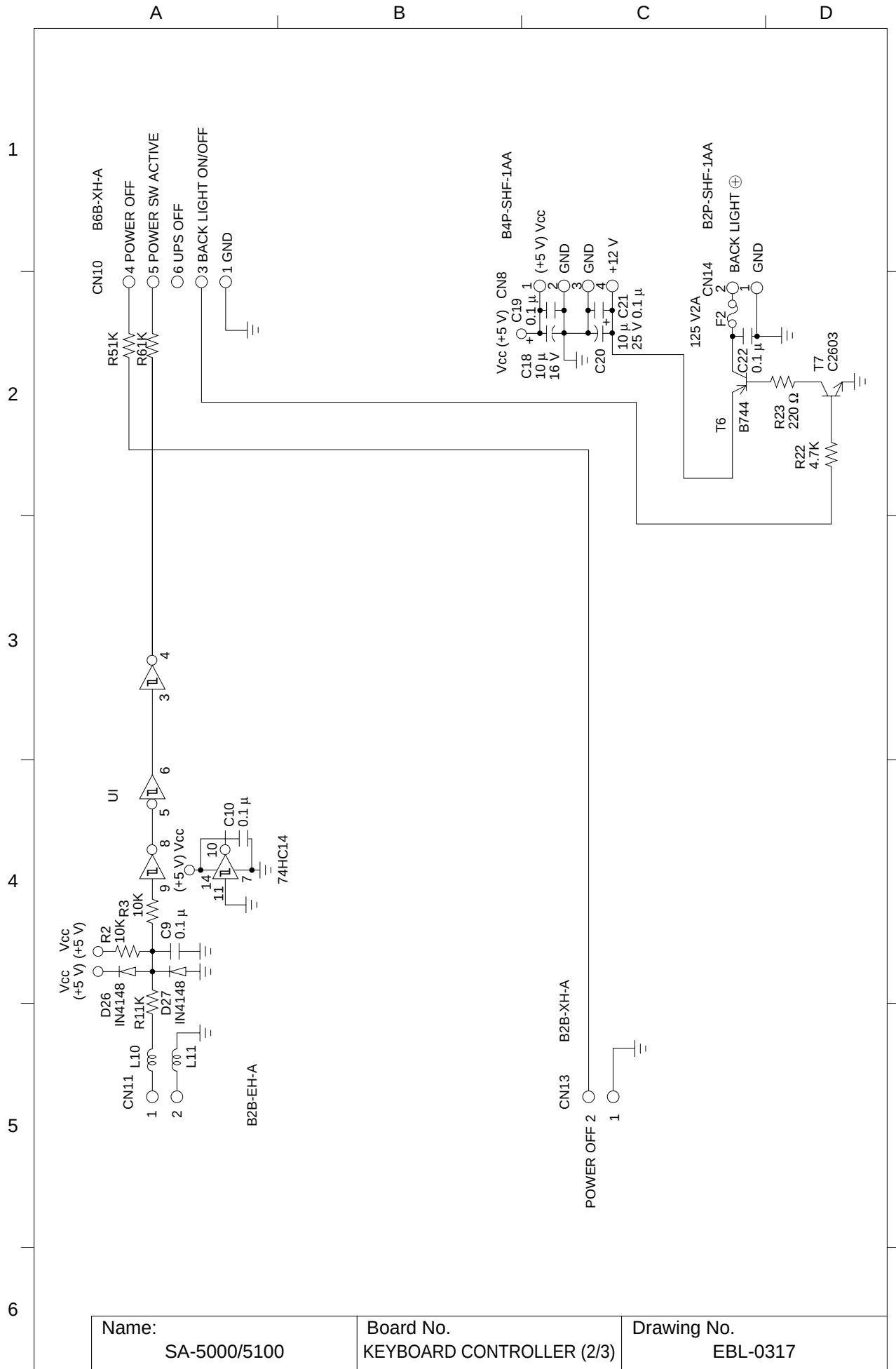
Memory Map



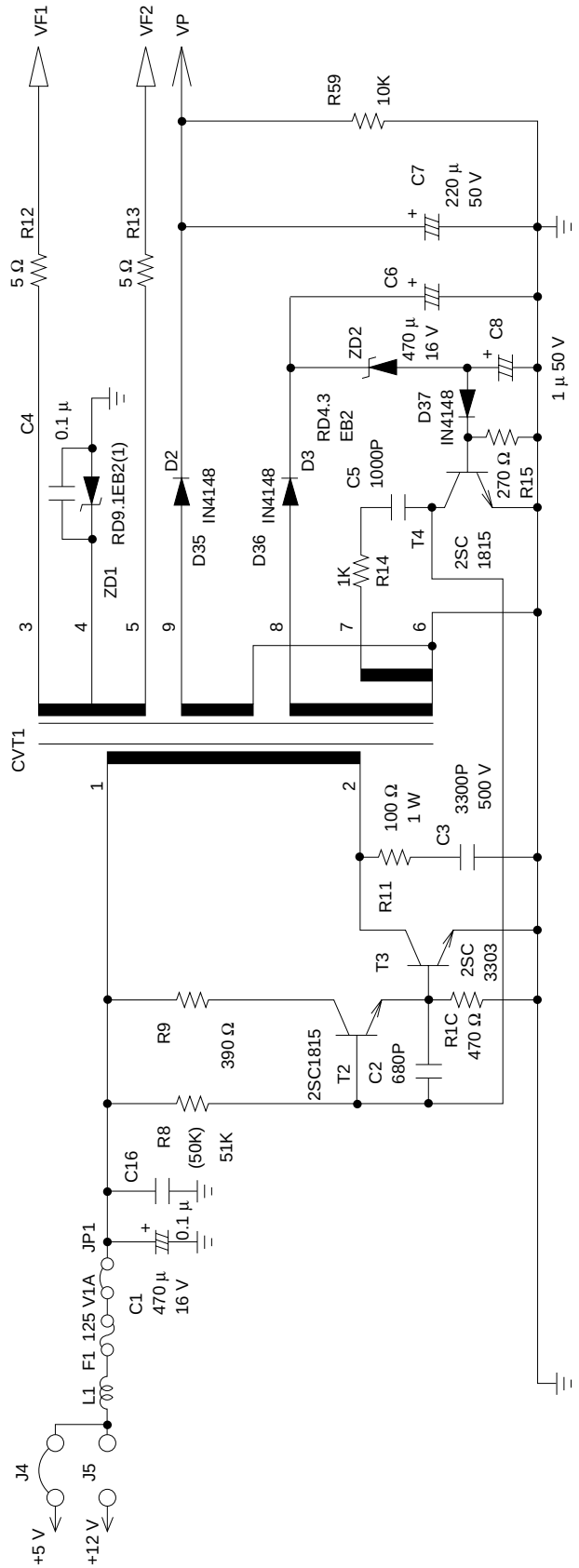
Name:	Board No.	Drawing No.
SA-5100	PRINTER CONTROLLER (2/2)	



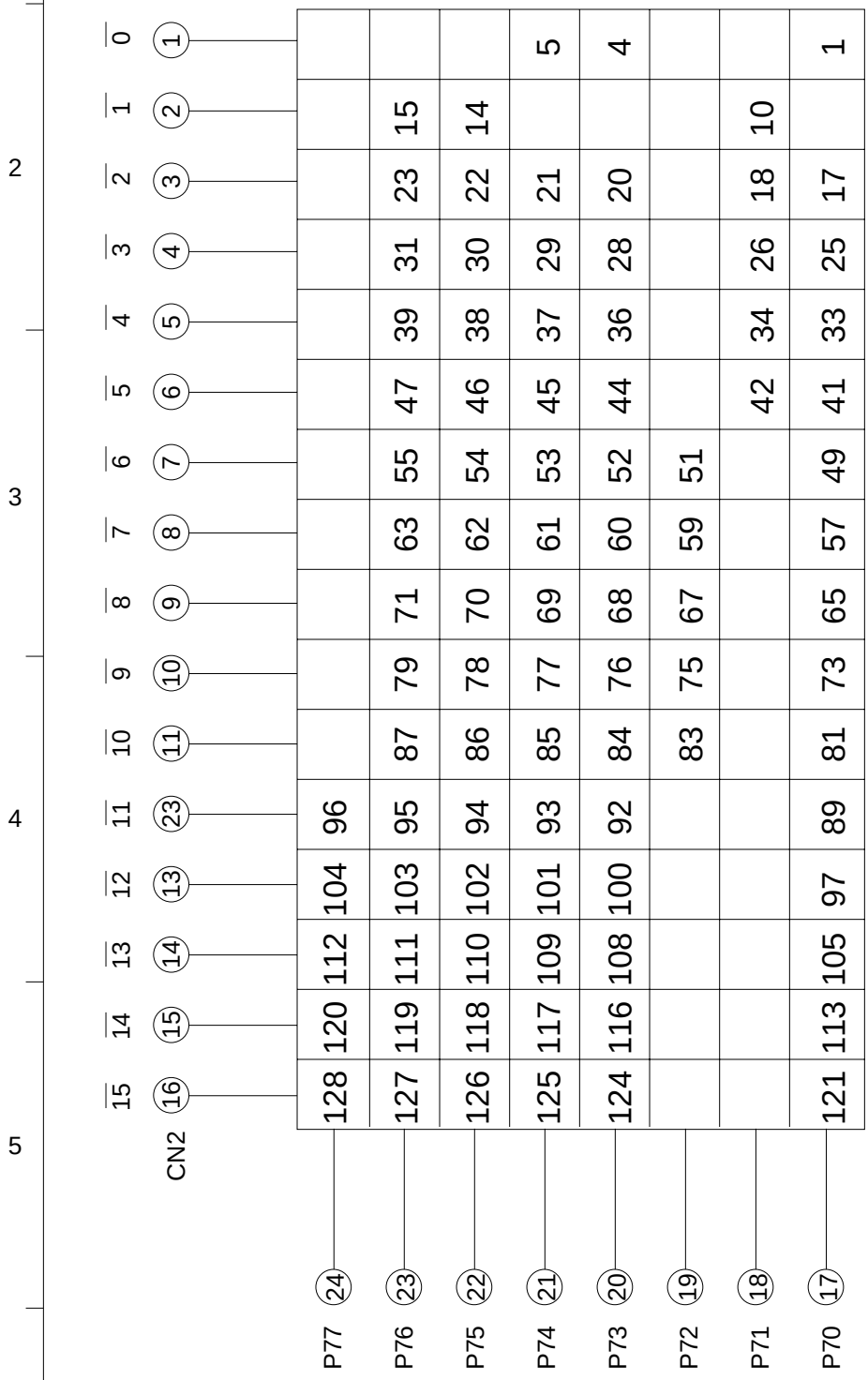
Name:	Board No.	Drawing No.
SA-5000/5100	KEYBOARD CONTROLLER (1/3)	EBL-0317



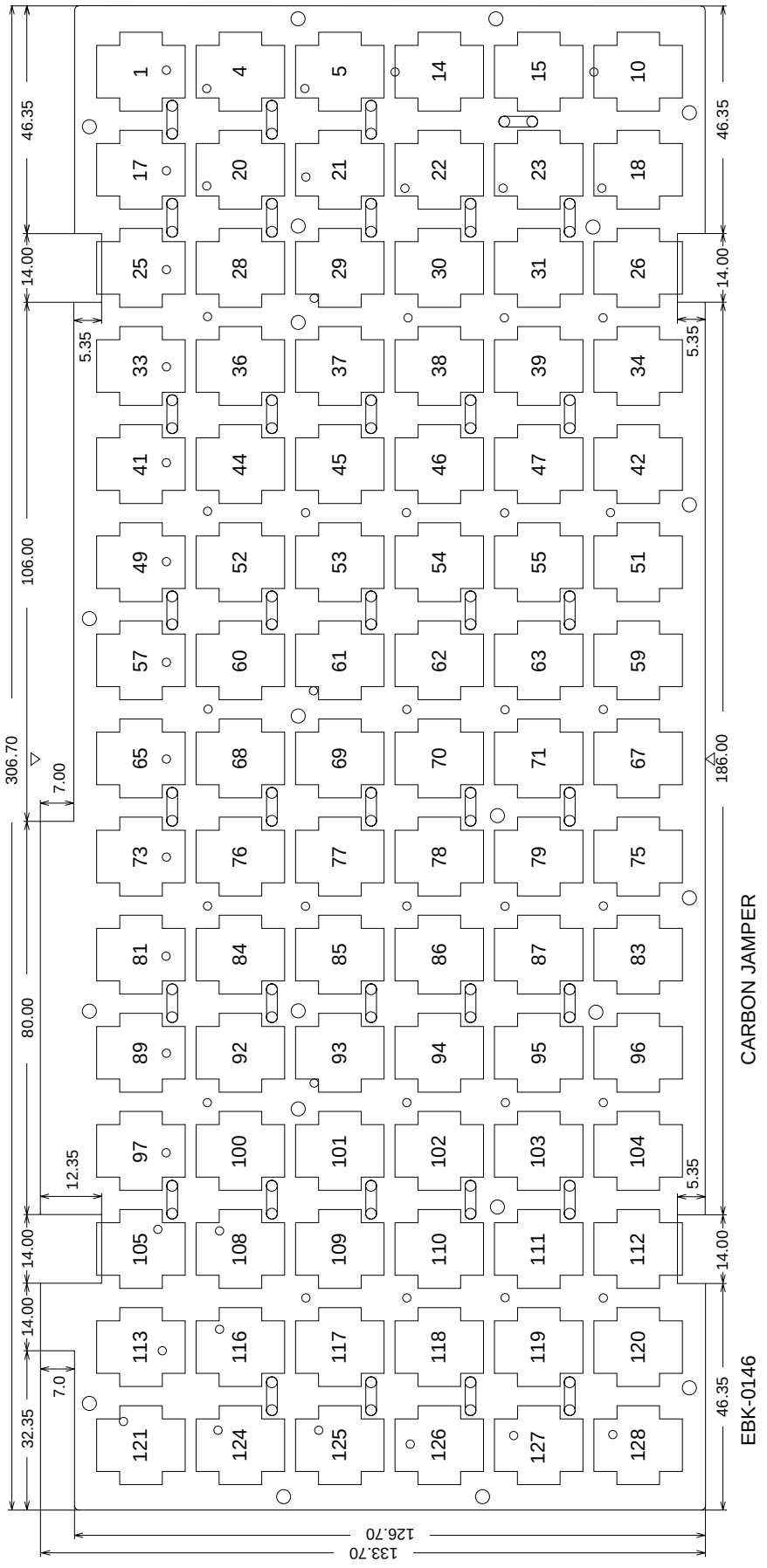
Name:	Board No.	Drawing No.
SA-5000/5100	KEYBOARD CONTROLLER (2/3)	EBL-0317



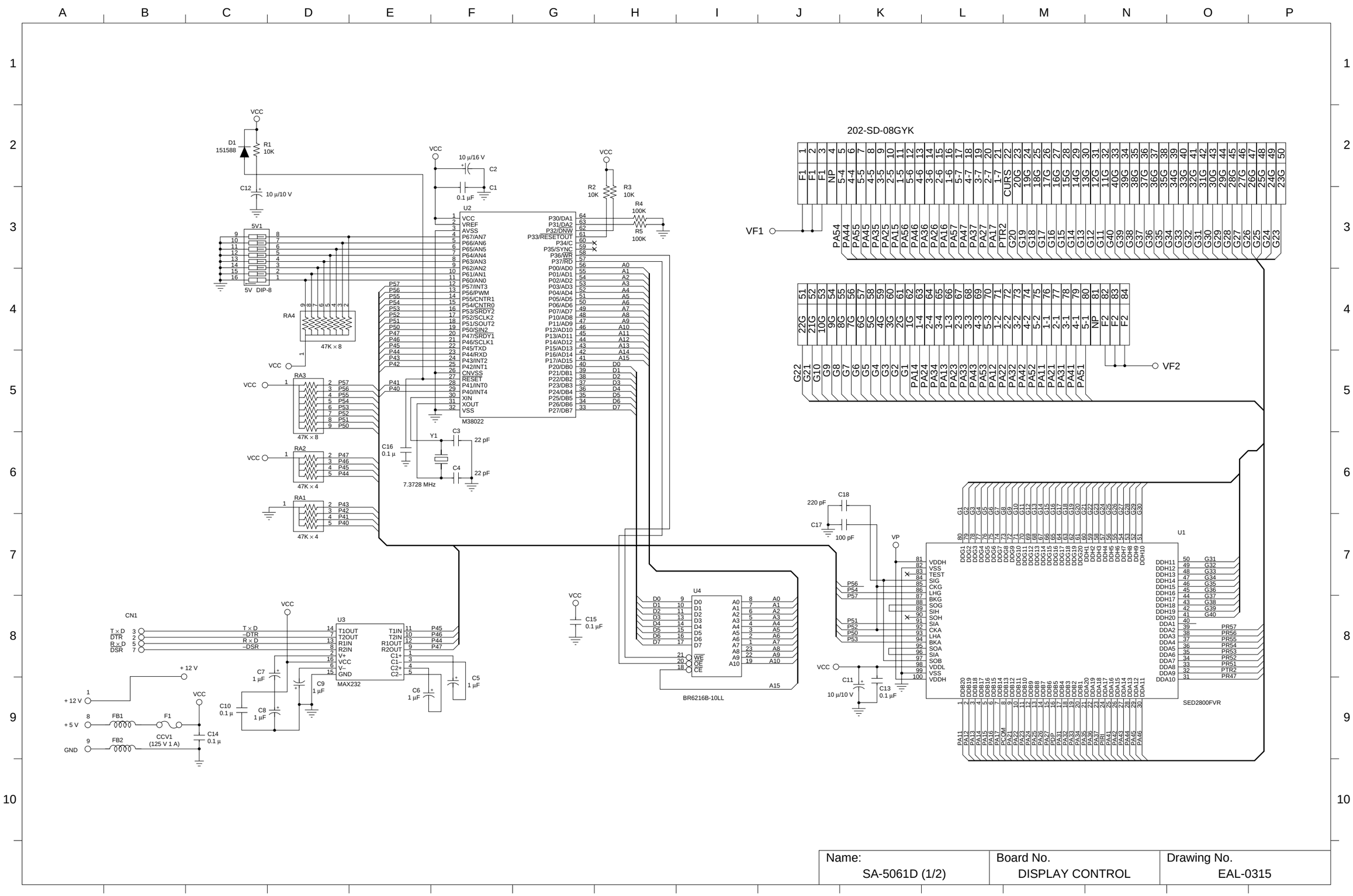
Name:	Board No.	Drawing No.
SA-5000/5100	KEYBOARD CONTROLLER (3/3)	EBL-0317



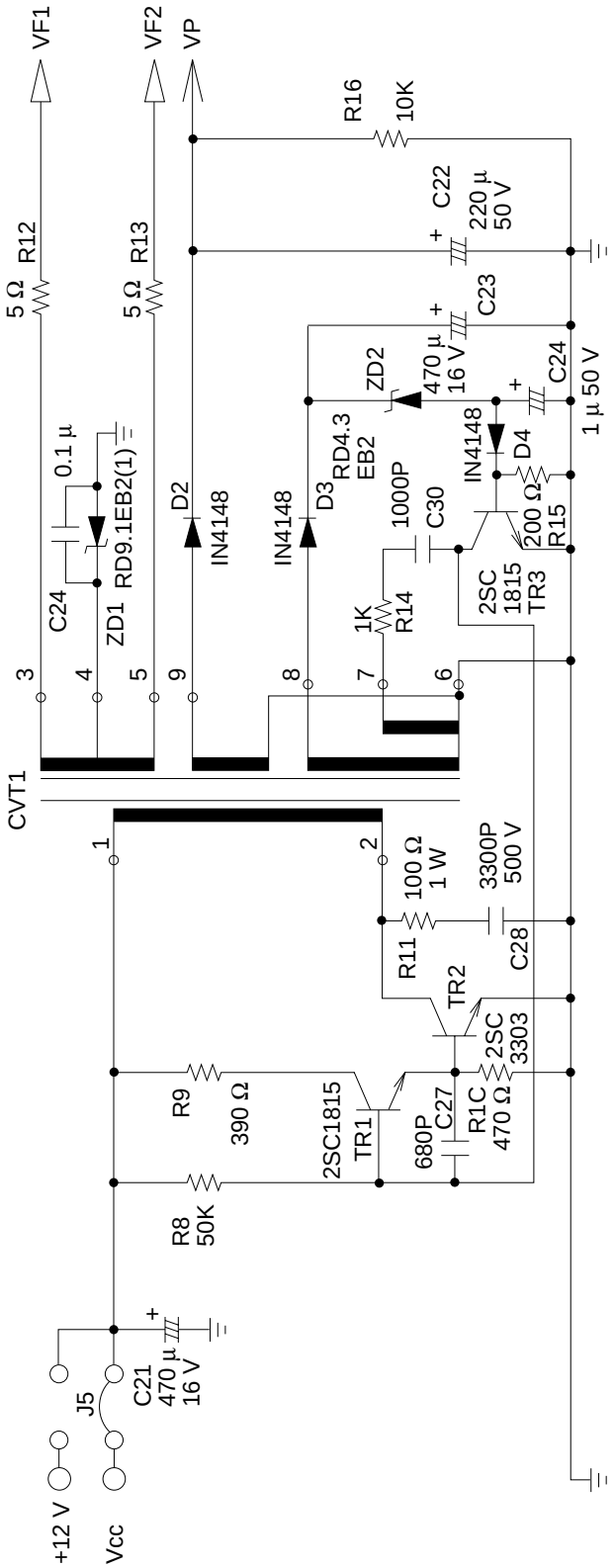
Name:	Board No.	Drawing No.
SA-5000/5100	KEYBOARD MATRIX	EBK-0146



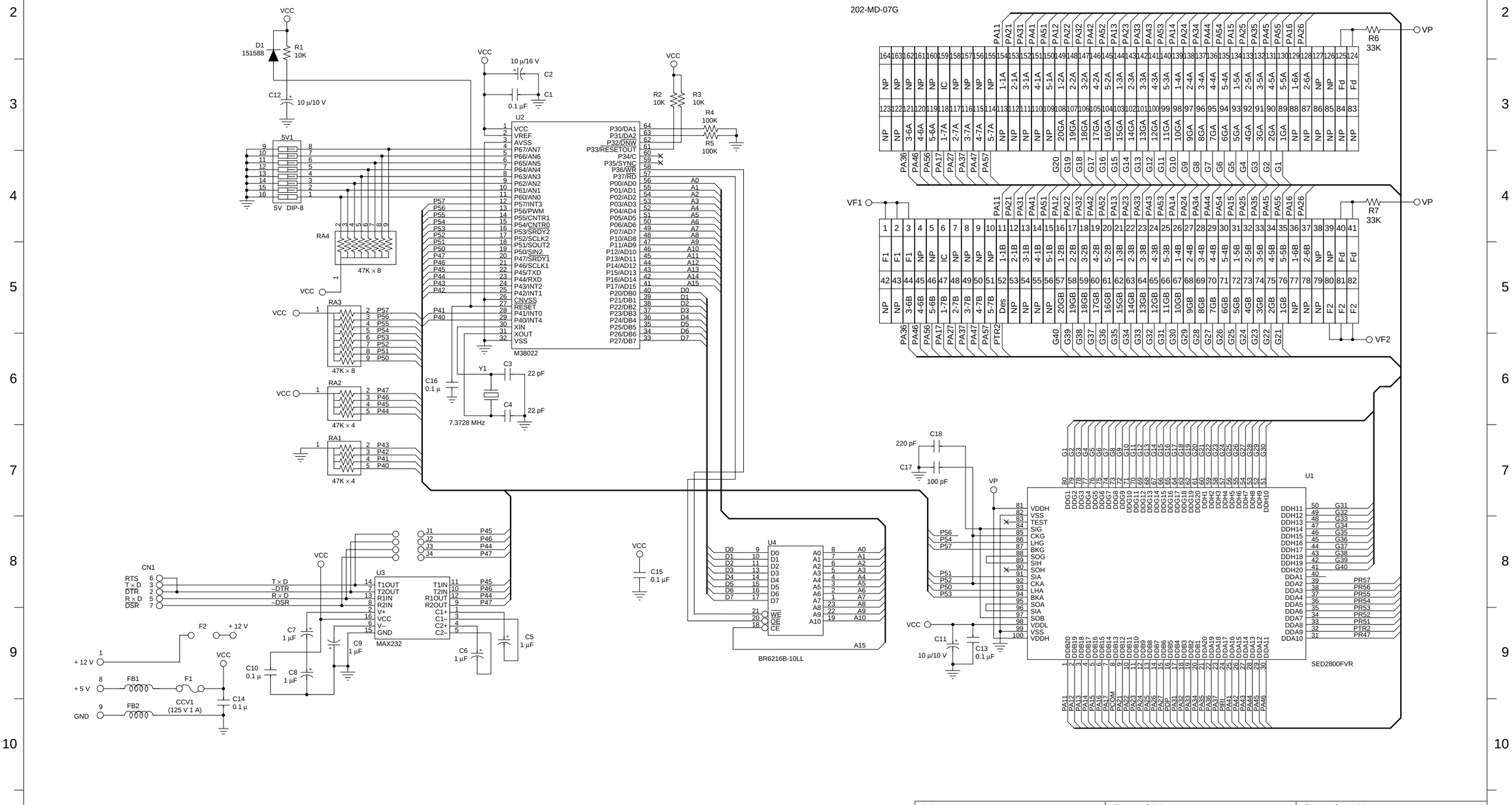
Name:	Board No.	Drawing No.
SA-5000/5100	KEY POSITION	EBK-0146



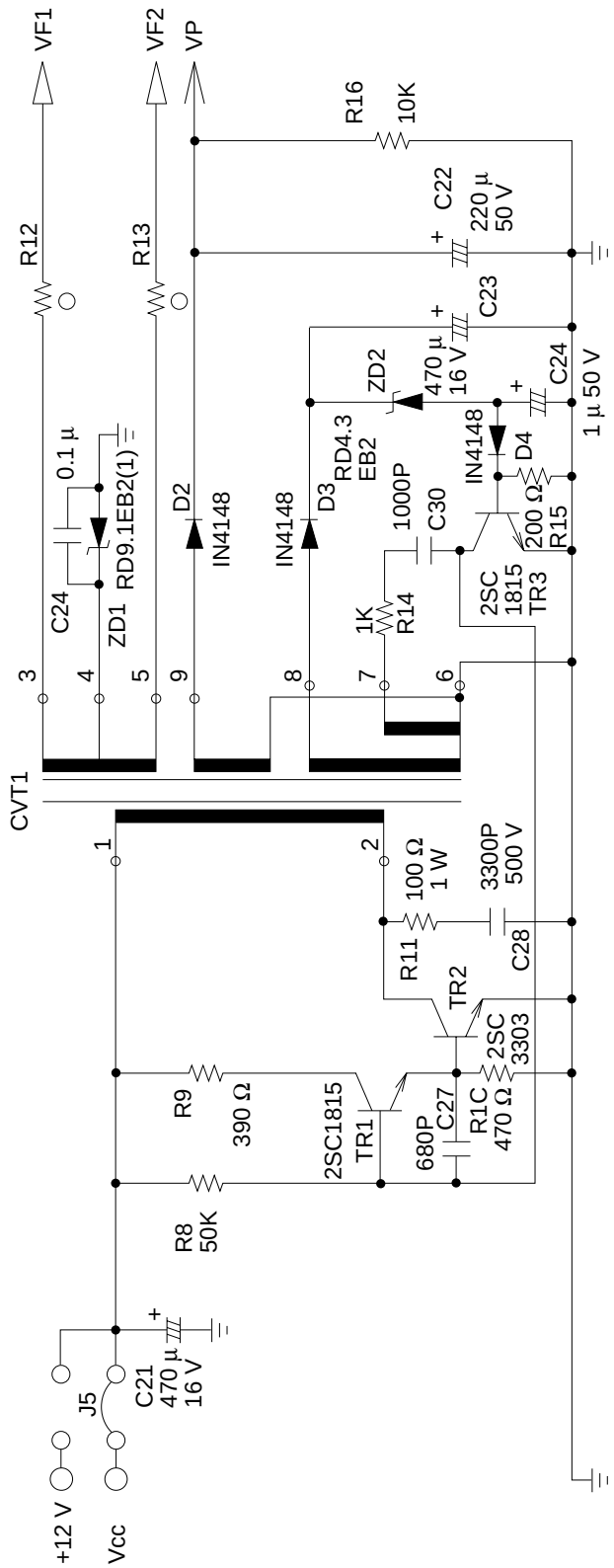
Name:	Board No.	Drawing No.
SA-5061D (1/2)	DISPLAY CONTROL	EAL-0315



Name:	Board No.	Drawing No.
SA-5061D (2/2)	DISPLAY CONTROL	EAL-0315



Name:	Board No.	Drawing No.
SA-5062DH	DISPLAY CONTROL (1/2)	EAL-0327



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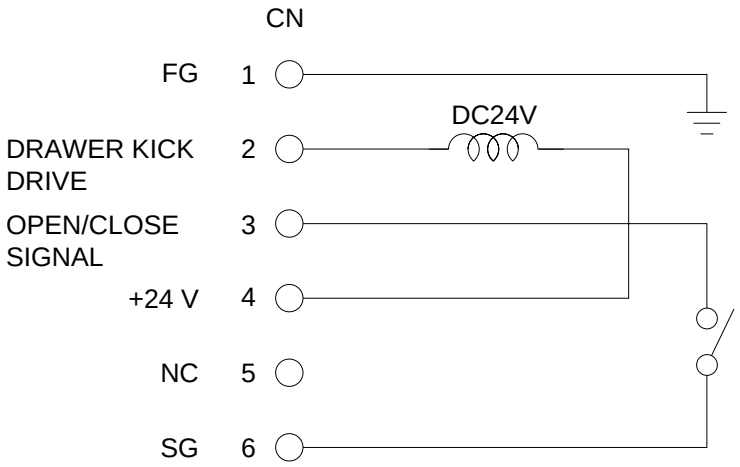
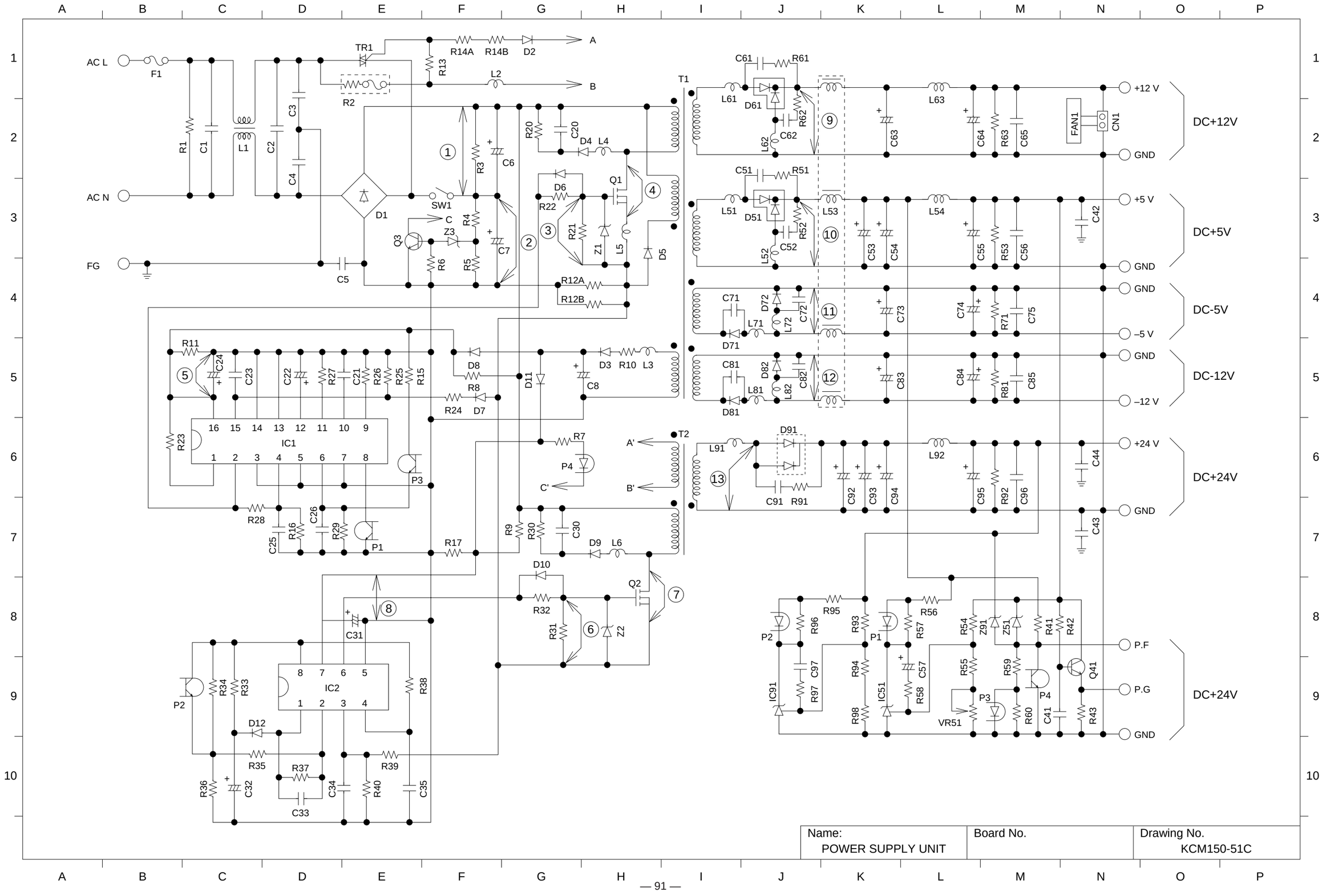
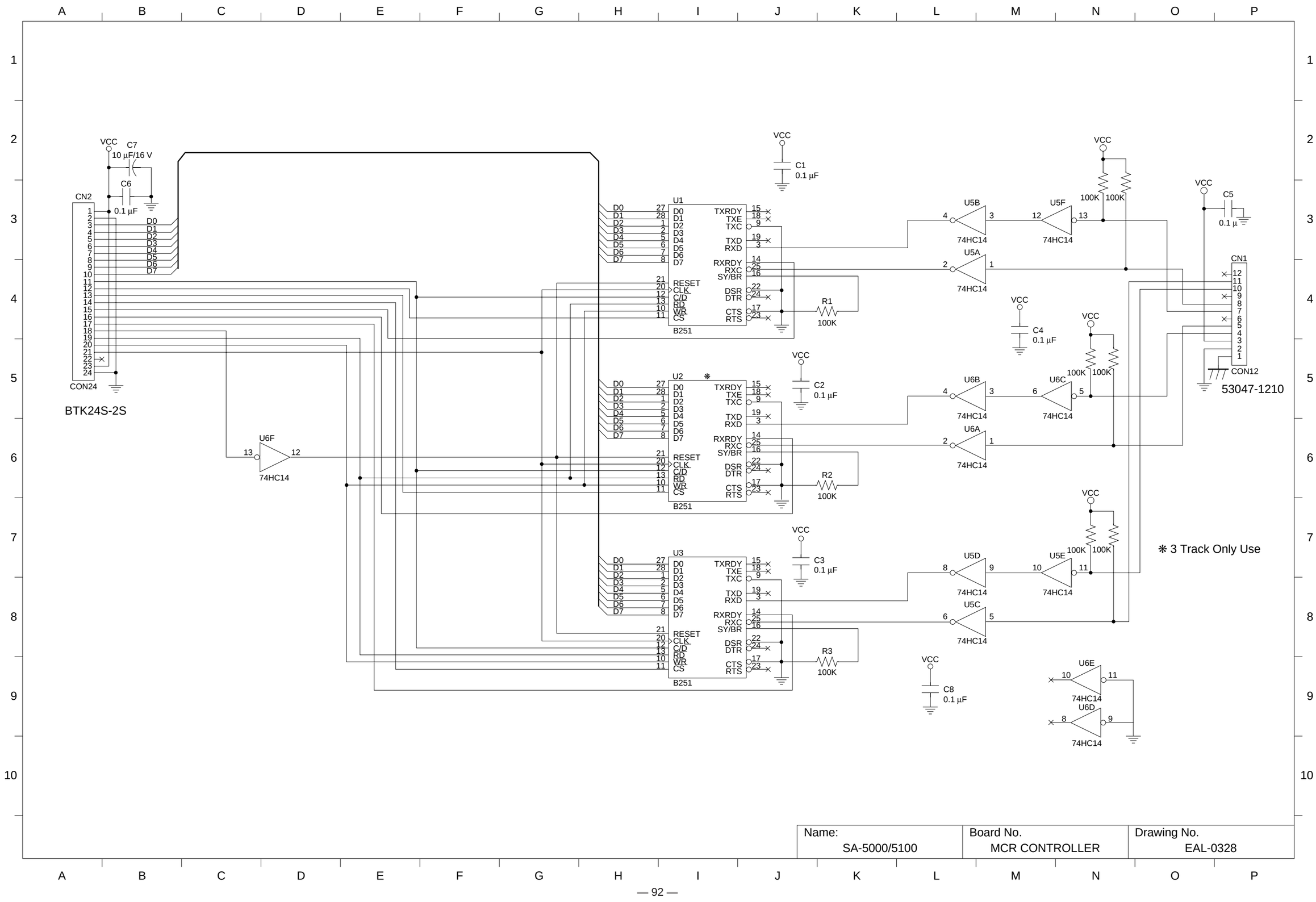
SA-5062DH (1/2)	DISPLAY CONTROL (2/2)	EAL-0327

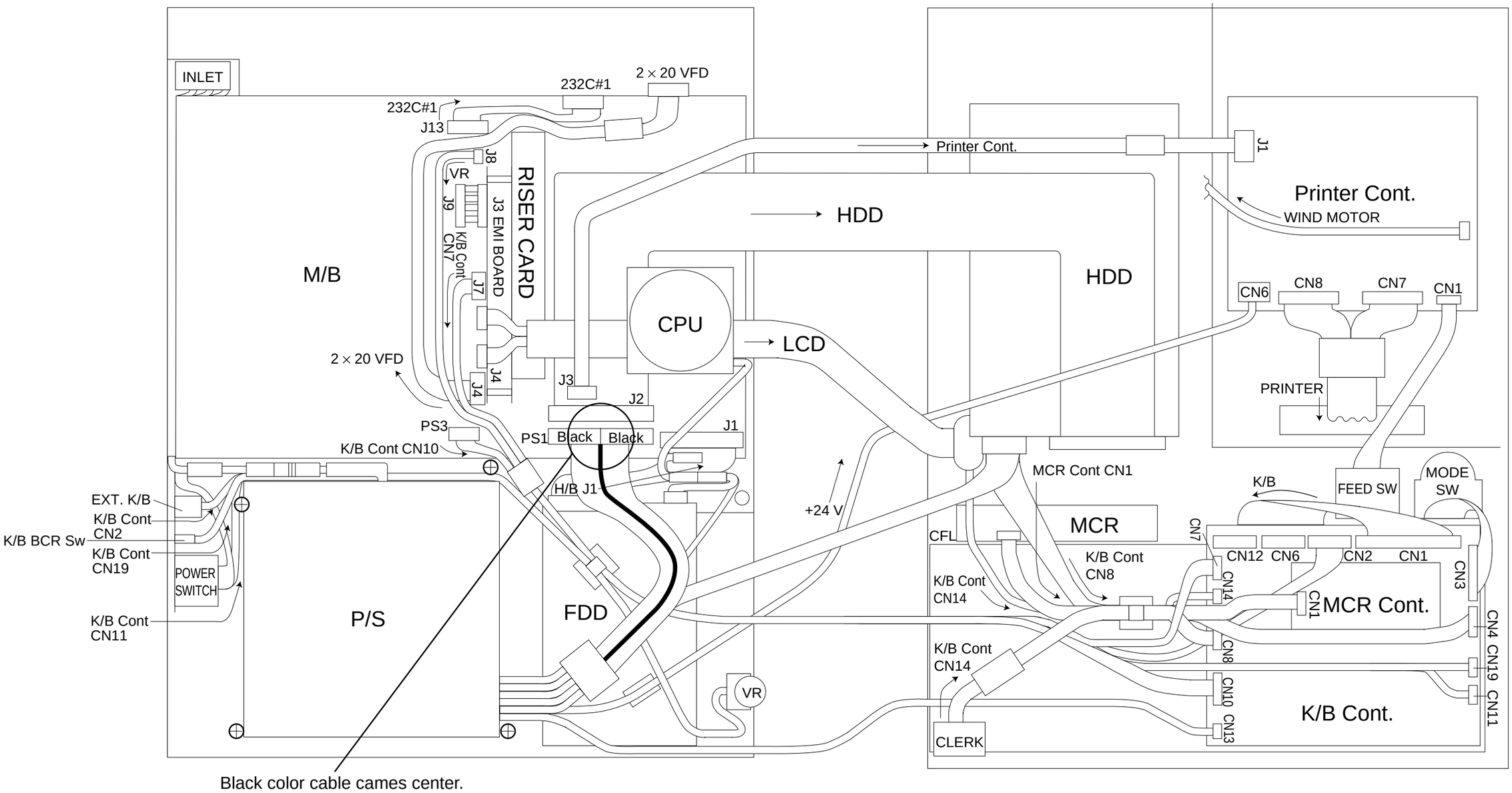


Name:	Board No.	Drawing No.
SA-5000/5100	DRAWER CIRCUIT	EAC-0065

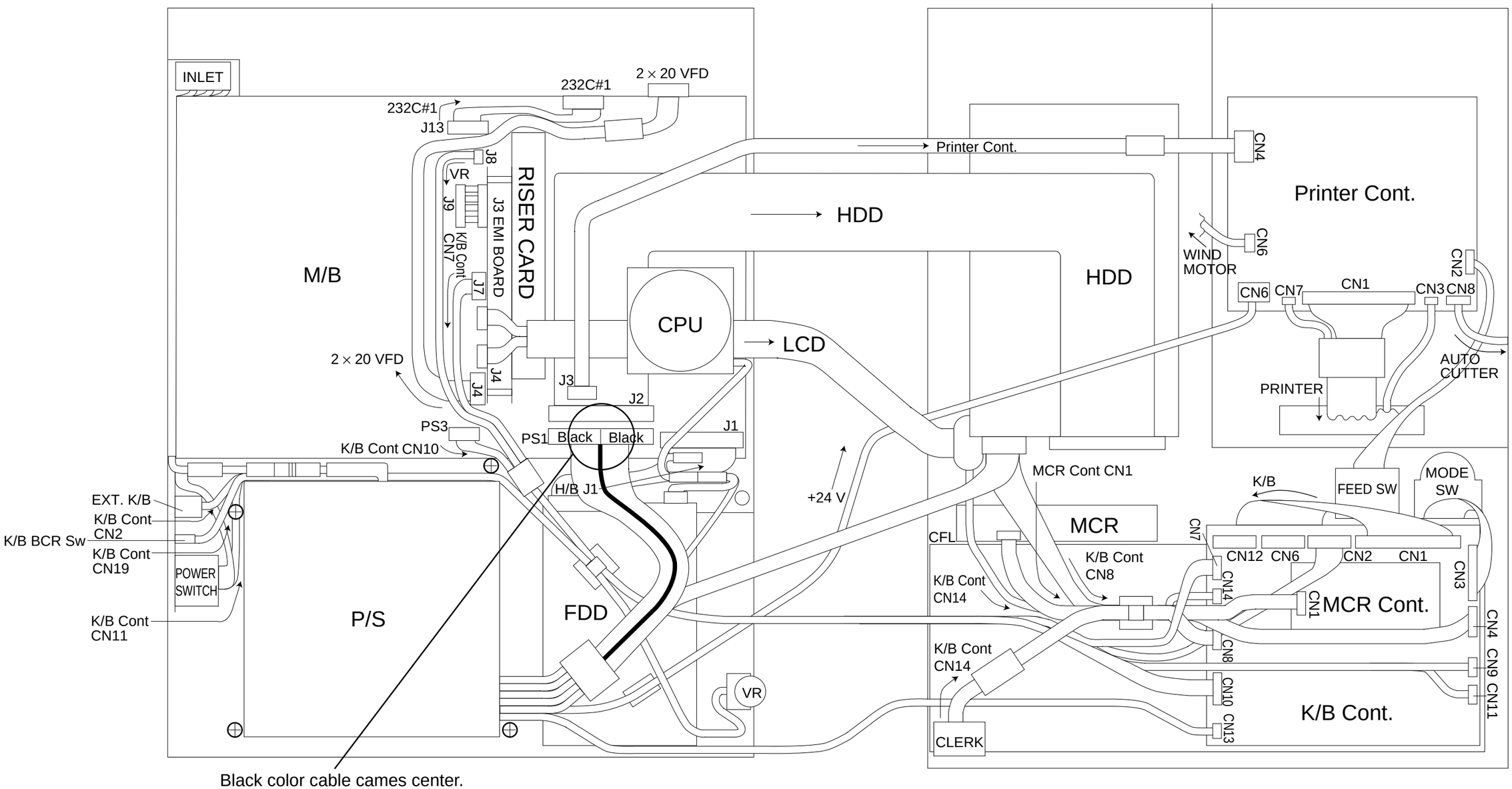

AC L
AC N
FG
F1
TR1
R1
C1
L1
C2
C3
C4
R2
R13
R14A
R14B
D2
A
B
L2
C5
D1
SW1
C
Q3
Z3
R4
R5
R6
C6
R3
C7
R20
C20
D4
L4
D6
R22
R21
Z1
L5
Q1
D5
R12A
R12B
T1
C61
R61
L61
D61
R62
C62
L62
L63
C63
C64
R63
C65
FAN1
CN1
+12 V
GND
DC+12V
C51
R51
L51
D51
R52
C52
L52
L53
L54
C53
C54
C55
R53
C56
C42
+5 V
GND
DC+5V
C71
D72
C72
L71
L72
D71
C73
C74
R71
C75
GND
–5 V
DC-5V
C81
D82
C82
L81
L82
D81
C83
C84
R81
C85
GND
–12 V
DC-12V
R11
C24
C23
C22
R27
C21
R26
R25
R15
D8
R8
R24
D7
D11
D3
R10
L3
C8
IC1
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
R23
P3
R28
C26
R16
C25
R29
P1
R17
R7
P4
C'
T2
A'
B'
R9
R30
C30
D9
L6
D10
R32
R31
Z2
Q2
C31
IC2
8 7 6 5
1 2 3 4
P2
R34
R33
R38
D12
R35
R37
R39
R36
C32
C33
C34
R40
C35
D91
L91
C91
R91
L92
C92
C93
C94
C95
R92
C96
C44
C43
+24 V
GND
DC+24V
R95
R96
R93
R56
R57
R54
Z91
Z51
R41
R42
C97
R97
R94
R58
C57
R55
R59
Q41
R98
R60
C41
R43
IC91
IC51
VR51
P.F
P.G
GND
DC+24V
Name:
POWER SUPPLY UNIT
Board No.
Drawing No.
KCM150-51C


CN2
CON24
BTK24S-2S
C7
10 µF/16 V
C6
0.1 µF
VCC
U1
U2
U3
B251
RESET
CLK
C/D
RD
WR
CS
D0
D1
D2
D3
D4
D5
D6
D7
TXRDY
TXE
TXC
TXD
RXD
RXRDY
RXC
SY/BR
DSR
DTR
CTS
RTS
C1
0.1 µF
C2
0.1 µF
C3
0.1 µF
C4
0.1 µF
C5
0.1 µ
C8
0.1 µF
R1
100K
R2
100K
R3
100K
U6F
74HC14
U5B
U5A
U5F
U6B
U6A
U6C
U5D
U5C
U5E
U6E
U6D
100K
CN1
CON12
53047-1210
✻ 3 Track Only Use
Name:
SA-5000/5100
Board No.
MCR CONTROLLER
Drawing No.
EAL-0328

SA-5000 CABLE WIRING



SA-5100 CABLE WIRING



13. PARTS LIST

1. SA-5000 96
2. SA-5100 105
3. SA-5001M / 5002C 113
4. SA-5060N / SA-5061D / SA-5062DH 117
5. DL-2909 123
6. DL-2765 125

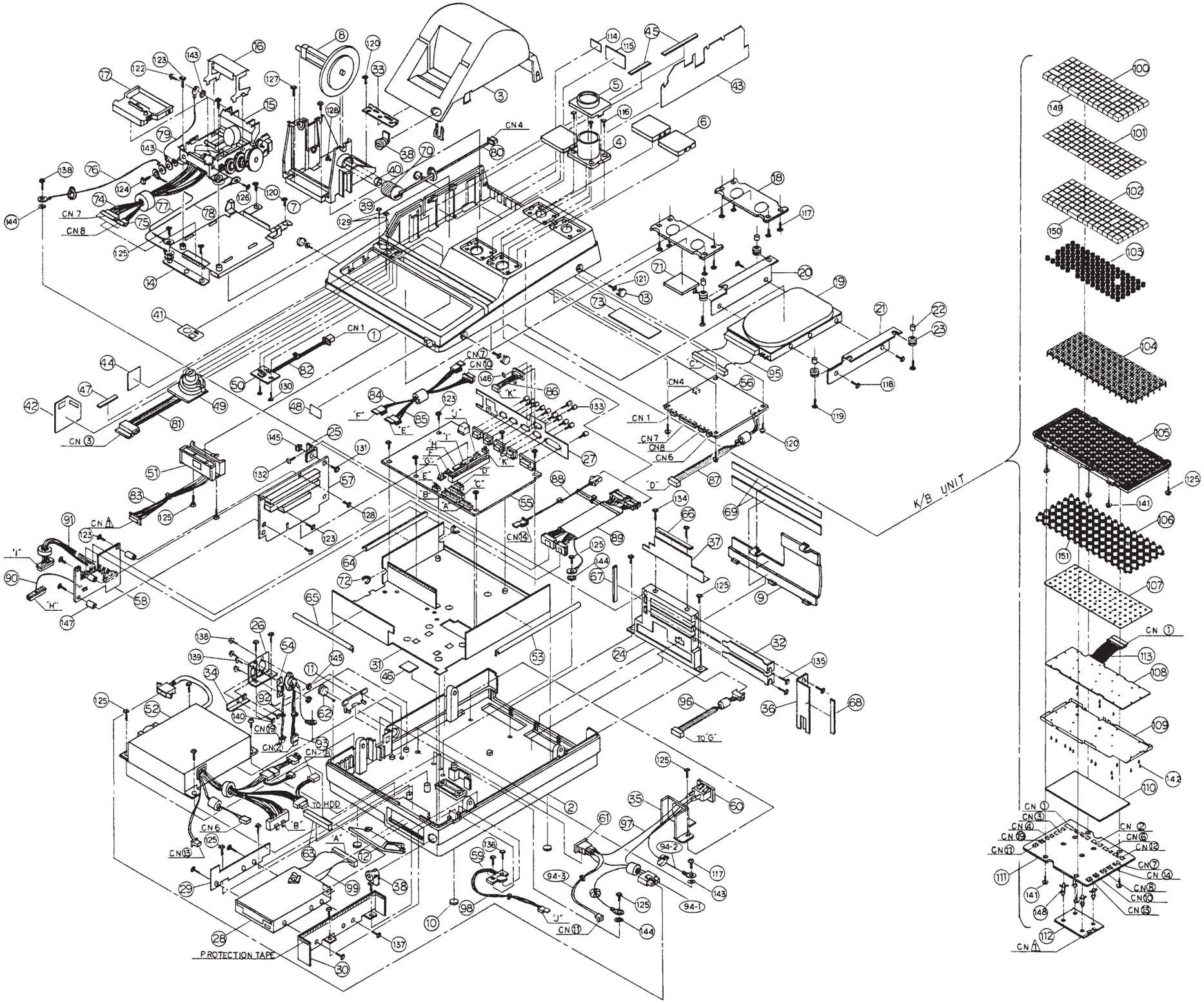
Notes:

1. Prices and specifications are subject to change without notice.
2. As for order / supply of spare parts, refer to the "GUIDEBOOK for Spare Parts Supply", a separate publication.
3. The numbers in item column correspond to the same numbers in drawing.
4. MARKS:

   Q: Quantity used per unit

   R: Rank

   A: Essential
   B: Stock recommended
   C: Less recommended
   X: No stock recommended


K/B UNIT
CN 1
CN 2
CN 3
CN 4
CN 5
CN 6
CN 7
CN 8
CN 9
CN 10
CN 11
CN 12
CN 13
CN 14
TO HDD
TO "G"
PROTECTION TAPE

PRINTER CONTROLLER

Item	Code No.	Parts Name		Specification	Q	R
		PCB	EBL-0387	48600400	1	X
U4	1904 8623	LSI	M38002M4-XXSP	00508345(OTP)	1	A
U8	1904 8481	IC	TC232CPE	00501420	1	A
U7	1904 8624	IC/MOS	TC74HC14AP	00606290	1	A
U2	1904 8625	IC/MOS	TC74HC123AP	00606531	1	A
U3	1904 8492	IC	M51953AL	00600265	1	A
U5	1904 8626	IC/TTL	HD74LS06P	00608012	1	A
U10	1904 8627	LSI/S-RAM	BR6265-10LL (SRM2264LC-10)	00502210	1	A
U1	1904 8628	IC	MTA001M-F4101	00600810	1	A
U12	1904 8629	IC/MOS	TC74HC139AP	00606150	1	A
U13.15	1904 8630	IC/MOS	TC74HC541AP	00608150	2	A
Q6-9	1904 8494	TRANSISTOR	2SC2603	00700630	4	B
Q4	1904 8495	TRANSISTOR	2SD1817	00700190	1	B
Q1	1904 8631	TRANSISTOR	2SD1827	00700150	1	B
Q10.11	1904 8496	TRANSISTOR	2SD986	00700240	2	B
Q2.3.5	1904 8493	TRANSISTOR	2SA1115	00700570	3	B
U6	1904 8632	TRANSISTOR/ARRAY	STA401A	00703010	1	A
D1	1904 8633	DIODE	1SS136	00800500	1	B
D4.5	1904 8501	DIODE	RL102-E	00800915	2	B
D2	1904 8634	DIODE/ZENER	RD24EB3	01000363	1	B
D3	1904 8500	DIODE/ZENER	RD8.2EB2	01000170	1	B
		CAPACITOR/ELECTROLYTIC	1uF 100V	01200852	1	X
C4		CAPACITOR/ELECTROLYTIC	10uF 16V	01200868	1	X
C20-24		CAPACITOR/ELECTROLYTIC	10uF 25V	01200870	4	X
C36		CAPACITOR/ELECTROLYTIC	100uF 50V	01200910	1	X
C31		CAPACITOR/ELECTROLYTIC	100uF 16V	01200906	1	X
C8		CAPACITOR/CERAMIC	220pF 50V	01100200	1	X
C15-19.25.27		CAPACITOR/CERAMIC	1000pF 50V	01100250	7	X
C1.2.5.7.9.11.22.26. 28.32.35.37.38-41		CAPACITOR/CERAMIC	0.1uF 50V	01100030	15	X
C12.13		CAPACITOR/CERAMIC	10pF 50V	01100061	2	X
C6.10.14.39.41		CAPACITOR/CERAMIC	0.01uF 50V	01100010	6	X
C42-44		CAPACITOR/CERAMIC	4700pF 50V	01100272	3	X
C33.34		CAPACITOR/CERAMIC	100pF 50V	01100170	2	X
C3		CAPACITOR/MYLAR	0.01uF 50V	01300110	1	X
R4		RESISTOR/METAL FILM	1/4W 162K 1%	01607040	1	X
R10		RESISTOR	25SJ470 ohm	01600690	1	X
R7.9.31		RESISTOR	25SJ4.7 ohm	01601080	3	X
R2.6.11.14.15.19.20. 27.32.34		RESISTOR	25SJ10Kohm	01601140	10	X
R13.23-26.28		RESISTOR	25SJ3.3Kohm	01601060	7	X
R3.35.38		RESISTOR	25SJ1Kohm	01601000	3	X
R12		RESISTOR	1W47 ohm	01608010	1	X
R5.29.30		RESISTOR	25SJ47Kohm	01601220	3	X
R18		RESISTOR	45SJ2.2Kohm	01601800	1	X
R22		RESISTOR	25SJ100 ohm	01600600	1	X
RA1		RESISTOR/ARRAY	1K x 4	01700239	1	X
RA2.3		RESISTOR/ARRAY	47K x 8	01700090	2	X

Item	Code No.	Parts Name		Specification	Q	R
L1-4		COIL	ELEXT101KA	62100080	4	X
FB1-4		CORE/BEAD	EXCELSA35	62100060	4	X
Y1	1904 8635	OSCILLATOR/CRYSTAL	7.3728MHZ	02300370	1	A
CN2	1904 8503	CONNECTOR	B4B-XH-A	04000230	1	C
CN8	1904 8509	CONNECTOR	B3P-VH	04002710	1	C
CN7	1904 8508	CONNECTOR	TM2REA-1212	03202020	1	C
CN3	1904 8505	CONNECTOR	B2B-XH-A	04005000	1	C
CN1	1904 8636	CONNECTOR	B18P-SHF-1AA	04000130	1	C
CN4	1904 8637	CONNECTOR	B7P-SHF-1AA	04000060	1	C
F1	1904 8510	FUSE	CCV-2	02500617	1	A
VR1	1904 8638	RESISTOR/VARIABLE	B500K EVN4LC	03100360	1	C
87	1904 8512	HARNESS ASSY	EAA-2485B	47410930	1	C
56	1904 8779	CONTROLLER ASSY		010002-05	1	A

K/B UNIT

Item	Code No.	Parts Name		Specification	Q	R
108	1904 8514	PCB	EBK-0146	13507470	1	C
101		SHEET/KEY TOP	EBA-2707	11402810	1	X
105		FRAME/KEYBOARD COVER	EDM-0917 No.345	10201341	1	X
109		PLATE/KEYBAORD COVER	ECM-1154A	10101235	1	X
102	1904 8515	BASE TOP (1x1)	EBM-0614 YB1	11600230	84	C
150	1904 8516	BASE TOP (1x2)	EBM-0615 YB2	11600240	3	C
100	1904 8517	CAP/KEY (1x1)	EBM-0612-A YC1	11500140	84	C
149	1904 8518	CAP/KEY (1x2)	EBM-0613-A YC2	11500150	3	C
104	1904 8519	HOUSING/STEM	EBM-0409	10300030	90	C
	1904 8520	RUBBER/CONTACT	CA23-443	10300010	84	C
106		STEM/KEY	CC22-466	set	84	-
103	1904 8521	SPRING/KEY	CA22-444	10400210	84	C
151	1904 8522	PIN/GUIDE	CB22-646	12100010	3	C
110		SHEET/INSULATION	170x125x0.2t	13100420	1	X
107	1904 8523	SHEET/RUBBER	ECM-0967	12300740	1	A
		SCREW	TP(P-TITE) 2x8	55100247	18	X
113	1904 8524	HARNESS ASSY	EAA-2504	47411000	1	C
	1904 8525	K/B ASSY		020013-03	1	C

K/B CONTROLLER UNIT

Item	Code No.	Parts Name		Specification	Q	R
		PCB	EBL-0317	13507475	1	X
U15	1904 8526	LSI	M38062M3-238FP	00507950	1	A
U7	1904 8527	LSI/S-RAM	BR6216B-10LL	00502220	1	A
U5	1904 8529	IC/MOS	TC74HC154AP	00606440	1	A
R12.13	1904 8530	IC/MOS	TC74HC04AP	00606250	2	A
U8	1904 8531	IC/MOS	TC74HC138AP	00602030	1	A
U14	1904 8532	IC/TTL	HD74LS07P	00608013	1	A
U9-11	1904 8533	IC	M54564P	00600175	3	A
U25	1904 8528	LSIO/EP-ROM	TMS27C512-10JL	00501510	1	A
U1	1904 8624	IC/MOS	TC74HC14AP	00606290	1	A
T2.4	1904 8534	TRANSISTOR	2SC1815(Y)	00701050	2	B
T3	1904 8535	TRANSISTOR	2SC3303(Y)	00702140	1	B
T6	1904 8536	TRANSISTOR	2SB744	00700210	1	B
T7	1904 8494	TRANSISTOR	2SC2603	00700630	1	B

Item	Code No.	Parts Name		Specification	Q	R
D2-17.22-25.38	1904 8538	DIODE	MA700	00800012	21	B
D18.26.27.35-37	1904 8539	DIODE	IN4148	00800920	6	B
D18	1904 8539	DIODE	IN4148	00800920	1	B
ZD1	1904 8541	DIODE/ZENER	RD9.1EB2	01000200	1	B
ZD2	1904 8542	DIODE/ZENER	RD4.3EB2	01000023	1	B
R12.13		RESISTOR	25SJ5.1 ohm	01600508	2	X
R15		RESISTOR	25SJ270 ohm	01600650	1	X
R9		RESISTOR	25SJ390 ohm	01600680	1	X
R10		RESISTOR	25SJ470 ohm	01600690	1	X
R1.5.6.14		RESISTOR	25SJ1Kohm	01601000	4	X
R22		RESISTOR	25SJ4.7Kohm	01601080	1	X
R2.3.24.46.47.57. 58.59.25		RESISTOR	25SJ10Kohm	01601140	9	X
R35-39.43.44.45		RESISTOR	25SJ47Kohm	01601220	8	X
R26		RESISTOR	25SJ47 ohm	01600560	1	X
R11		RESISTOR	1W100 ohm	01604111	1	X
R8		RESISTOR	25SJ51Kohm	01601225	1	X
R23		RESISTOR	25SJ220 ohm	01600640	1	X
C25.28		CAPACITOR/CERAMIC	22pF 50V	01100090	2	X
C2		CAPACITOR/CERAMIC	680pF 50V	01100240	1	X
C5.29		CAPACITOR/CERAMIC	1000pF 50V	01100250	2	X
C23		CAPACITOR/CERAMIC	0.01uF 50V	01100010	1	X
C4.21.22.3?.35. 37-39.16.9.10. 17.19		CAPACITOR/CERAMIC	0.1uF 50V	01100030	13	X
C3		CAPACITOR/CERAMIC	3300pF 50V	01101020	1	X
C22.19.41		CAPACITOR/CERAMIC	100pF 50V	01100170	3	X
CA1		CAPACITOR/ARRAY	B9HC0119-15N	01102060	1	X
C30.31.16		CAPACITOR/CERAMIC	0.1uF 50V	01102010	3	X
C8		CAPACITOR/ELECTROLYTIC	1uF 50V	01200850	1	X
C24.27.32		CAPACITOR/ELECTROLYTIC	10uF 16V	01200868	4	X
C20		CAPACITOR/ELECTROLYTIC	10uF 25V	01200870	1	X
C26		CAPACITOR/ELECTROLYTIC	47uF 16V	01200890	1	X
C1.6		CAPACITOR/ELECTROLYTIC	470uF 16V	01200921	2	X
C7		CAPACITOR/ELECTROLYTIC	220uF 50V	01200916	1	X
L1-5.12		CORE/BEAD	EXCELSA35V	62100060	6	X
L6-11		COIL	ELEXT101KA	62100080	6	X
RA2		RESISTOR/ARRAY	10Kx8	01700030	1	X
RA1		RESISTOR/ARRAY	47Kx8	01700090	1	X
CN1	1904 8543	CONNECTOR	B24P-SHF-1AA	04000180	1	C
CN2	1904 8544	CONNECTOR	B6P-SHF-1AA	04000050	1	C
CN3	1904 8545	CONNECTOR	B9P-SHF-1AA	04000080	1	C
CN4	1904 8546	CONNECTOR	B5P-SHF-1AA	04000040	1	C
CN5	1904 8547	CONNECTOR	BTK24P-2S-H	03200720	1	C
CN6	1904 8548	CONNECTOR	B12B-XH-A	04000270	1	C
CN7	1904 8549	CONNECTOR	B4P-SHF-1AA	04000030	1	C
CN8	1904 8550	CONNECTOR	171825-4	04004000	1	C
CN10	1904 8551	CONNECTOR	B6B-XH-A	04000232	1	C
CN11	1904 8552	CONNECTOR	B2B-EH-A	04001810	1	C
CN12	1904 8553	CONNECTOR	B11B-XH-A	04000260	1	C
CN14	1904 8554	CONNECTOR	B2P-SHF-1AA	04000010	1	C
CN13	1904 8555	CONNECTOR	B2B-XH-A	04005000	1	C
CN19	1904 8556	CONNECTOR	5267-02A-X	04003100	1	C

Item	Code No.	Parts Name		Specification	Q	R
F1	1904 8669	FUSE	CCV1	02500615	1	A
F2	1904 8510	FUSE	CCV2	02500617	1	A
CVT-1	1904 8558	TRANS/CONVERTER	C301	01901530	1	A
		SOCKET/IC	DICF-28CS-E	02200120	1	X
Y1	1904 8559	OSCILLATOR/CRYSTAL	10.000MHZ AT-51	02300400	1	A
148		SPACER/PCB	MSPLS-6	35100135	4	X
JP1	1904 8560	CONNECTOR	PS-2PF-D4T1-PKL-1	03201050	1	C
		SOCKET	PS-2SH4-1	03201040	1	X
J1.4		WIRE/JUMPER	L=10mm	60100010	2	X
111	1904 8641	K/B CONTROLLER ASSY		020014-05	1	A

PRINTER UNIT

Item	Code No.	Parts Name		Specification	Q	R
15	1904 8642	PRINTER UNIT	DP614-MFC-1	24701625	1	A
16	1904 8643	COVER/PRINTER HEAD		24701624	1	C
74	1904 8644	HARNESS ASSY	EAH-0034	47404210	1	C
75	1904 8645	HARNESS ASSY	EAA-2649A	47404080	1	C
39	1904 8564	MOTOR/WINDING	RK-370C-18260	45700500	1	A
40	1904 8646	RUBBER/WINDING	EDM-0125A	45800060	1	A
80	1904 8566	HARNESS ASSY	EAH-0001	47411620	1	C
78	1904 8647	HARNESS ASSY	EAH-0023	47412060	1	C
79	1904 8648	HARNESS ASSY	EAA-1968	47410440	1	C

FEED PWD ASSY

Item	Code No.	Parts Name		Specification	Q	R
50	1904 8570	PCB	EAL-0330	00400770	1	X
	1904 8571	SWITCH/PUSH	JPM1030-0201	13700230	1	A
	1905 8572	LED	GL1HD111 RED	02700080	1	B
82	1905 8573	HARNESS ASSY	EAA-2502	47410980	1	C

CONTROL KEY ASSY

Item	Code No.	Parts Name		Specification	Q	R
49	1904 8574	SWITCH/CONTROL KEY	KSL-B74FH01(1)-B1J	12000365	1	A
81	1904 8575	HARNESS ASSY	EAA-2507	47411030	1	C

K/B BCR TURN SW ASSY

Item	Code No.	Parts Name		Specification	Q	R
54	1904 8576	SWITCH/SLIDE	SLC2200	10700200	1	C
92	1904 8577	HARNESS ASSY	EAA-2503B	47410990	1	C
		TUBE	ø2 L=10	55700005	2	X

FDD UNIT

Item	Code No.	Parts Name		Specification	Q	R
28	1904 8578	FDD	MF355F-2250MG	60700630	1	A
99	1904 8579	CABLE/JOINT ASSY	EAA-2495	47410941	1	C

PS UNIT

Item	Code No.	Parts Name		Specification	Q	R
60		INLET	JR-101S	20300510	1	X
61	1904 8580	SWITCH/POWER	SJ-WZH4A-03BB2	20200115	1	C
94-1	1904 8581	HARNESS ASSY	EAA-2492D	47410937	1	C
94-2	1904 8582	HARNESS ASSY	EAA-2493A	47410938	1	C
94-3	1904 8583	HARNESS ASSY	EAA-2648	47411200	1	C
		CLAMP/FERRITE	CZAT1518-0730	21002000	1	X
52	1904 8584	SWITCHING P/S UNIT	KCM150-51C	20100010	1	A
		WIRE	AWG22 WHITE L=330	20500380	1	X
		TUBE	ø5 L=20	55700610	3	X
		TUBE	ø4 L=20	55700600	4	X

CABLE ASSY

Item	Code No.	Parts Name		Specification	Q	R
84	1904 8585	CABLE/K/B I/F	EAA-2497	47410950	1	C
85	1904 8586	CABLE/M/B CONTROL	EAA-2498	47410960	1	C
93	1904 8587	CABLE/DIN CONNECTOR	EAA-2499A	47410970	1	C
89	1904 8588	CABLE ASSY/LCD	EAH-0055	47413196	1	C
	1904 8717	SHIELD/SHRINK	30mmx320L	55700350	1	X
96	1904 8589	CABLE ASSY/VFD(2x20)	EAA-2531A	47411050	1	C
		CLAMP/FERRITE	ZCAT1518-0730	21002000	1	X
		INSULOCK TIE	Comes with the above part			X
88	1904 8590	CABLE/BACK LIGHT	EAA-2534B	47411052	1	C
91	1904 8591	CABLE/FILTER INTERCONNECTION	EAH-0014	47412000	1	C
90	1904 8592	CABLE/FILTER INTERCONNECTION	EAH-0015	47412010	1	C
		CORE/FERRITE	ESD-R-25D	40300530	1	X

CONTRAST PWD ASSY

Item	Code No.	Parts Name		Specification	Q	R
59	1904 8593	PCB	EAL-0331	00400780	1	C
	1904 8594	RESISTOR/VARIABLE	EVLHFKA05	03100210	1	C
98	1904 8595	HARNESS ASSY	EAA-2490	47410935	1	C

CASE UNIT

Item	Code No.	Parts Name		Specification	Q	R
2	1904 8596	CASE/BOTTOM	EDM-0916 No.345	24406020	1	X
10		FOOT/RUBBER	Comes with the above parts	set	4	-
12	1904 8598	COVER/FDD	EBM-0926 No.345	24250381	1	C
11	1904 8599	COVER/POWER SWITCH	EBM-0937 No. 345	24250391	1	C
9	1904 8600	COVER/BACK	EBM-0927 No. 345	24250401	1	C
1	1904 8649	CASE/UPPER	EDM-0915A No. 345	24106040	1	X
4	1904 8602	BASE/SHAFT	EBM-0930 No. 345	24250411	1	X
5	1904 8603	COVER/BASE/SHAFT	EAM-0931 No. 345	24250421	1	X
6	1904 8604	COVER/BASE/SHAFT	EAM-0932 No. 345	24250431	2	X
	1904 8605	CAM LOCK A	EBM-0303	47300502	1	C
33	1904 8650	CUTTER/PAPER	EAM-1002	24301030	1	C
3	1904 8651	COVER/PRINTER	EDM-0958A No. 345	24206040	1	C
13	1904 8607	PIECE/SCREW BLIND	EAM-0954 No. 345	46200140	4	X

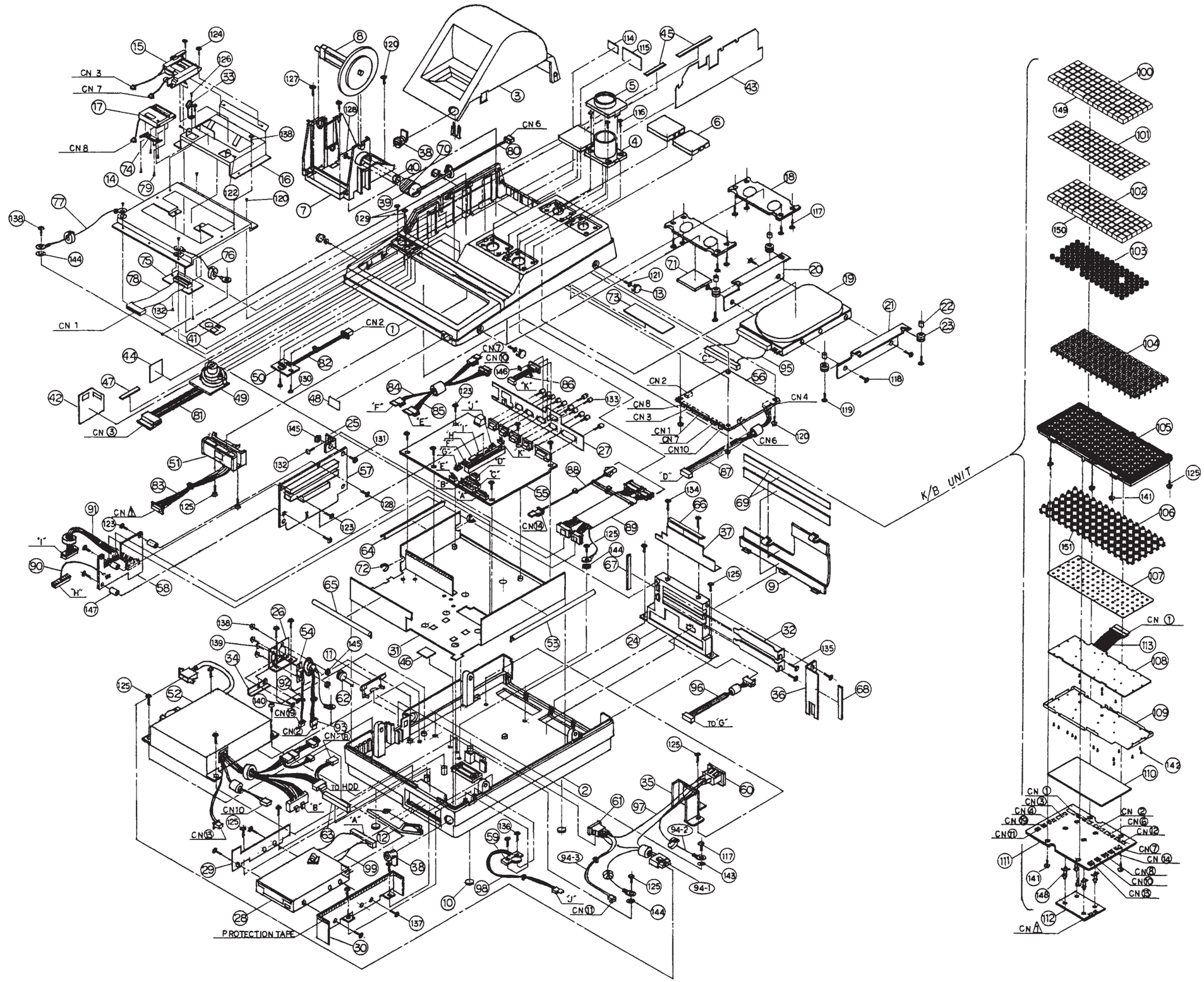
MOUNT PARTS

Item	Code No.	Parts Name		Specification	Q	R
30		BRACKET/FDD	EAM-01153 RIGHT	41600052	1	X
29		BRACKET/FDD	EAM-0975 LEFT	46501073	1	X
38	1904 8605	CAM LOCK A	EBM-0303	47300502	2	C
37		BARRIER	EAM-1150	40800650	1	X
26		PIECE/DIN CONNECTOR FITTING	EAM-0950	46001050	1	X
72		FREE BUSH	EL-10 L=60mm	49700100	1	X
24		PANEL/BACK CONNECTOR	ECM-0944	45400280	1	X
27		PLATE/INTERFACE	ECM-0965	45400290	1	X
34		PLATE/SET	EAM-1014	45300590	1	X
35		PIECE/AC INLET FITTING	EBM-1120A	46001061	1	X
25		PIECE/RISE BOARD FITTING	EAM-0949	46001070	1	X
36		PLATE/COVER	EAM-1121	45300591	1	X
18		BRACKET/POLE SUPPORT	EAM-0951	46501074	2	X
53		GASKET	UC-300281 L=720mm	03600010	1	X
		GASKET	UC-3E0595 L=230mm	03600050	1	X
20		HOLDER/HDD	EAM-0945 LEFT	11104050	1	X
21		HOLDER/HDD	EAM-0974 RIGHT	11104060	1	X
14		CHASSIS/PRINTER	ECM-0957 (DP614)	24276820	1	X
7		CASE/WINDER	ECM-0961A No. 345	41500084	1	X
31		PLATE/BASE SHIELD	EDM-1063	10101230	1	X
32	1904 8608	COVER/SLOT	EAM-1001	46501110	2	C
43		SEAL/BLIND	EBM-1252 (LARGE TYPE)	31103330	1	X
44		SEAL/BLIND	EBM-1255 (FOR MOTOR)	31103350	1	X
45		SEAL/BLIND	EAM-1258 (A) (B) SET	31103360	1	X
62	1904 8609	CAP/RUBBER	EAM-0992A No. 344	45800131	1	C
71		CUSHION	EAM-1016	60200530	1	X
		SHEET/RUBBER	16x10x1t		1	X
22		SPACER	3x6.5	35102020	4	X
73		SHEET/INSULATION	110x35x0.2t	13100430	1	X
46		SHEET/INSULATION	20x25x0.2t	13100440	1	X
		SHEET/INSULATION	EAM-1251	13101200	1	X
23		RUBBER/HDD HOLDER	EAM-0968	11104070	4	X
		SCREW	M4x15 EAM-1155	55101350	1	X
63		CARD/SMART CARD	EAM-1083	41500240	1	X
41	1904 8610	LABEL/CONTROL KEY SWITCH	EAM-0983	31700122	1	C
48		LABEL/CLERK KEY	EAM-0970	31700123	1	X
55	1904 8611	MOTHER BOARD		60700910	1	A
57	1904 8612	RISER CARD		60700920	1	A
19	1904 8613	HDD		60700930	1	C
58	1904 8614	BOARD/FILTER		60700940	1	C
86	1904 8615	CABLE/D-SUB CONNECTOR	EAA-2625A	47411151	1	C
147		SPACER	SA55M3-8BS	35100025	3	X
95	1904 8616	CABLE/JOINT	EAA-2549B	47411090	1	C
133		FIXER	7A0044-4K0830	55101360	4	X
146		NUT	UNC No. 4-40	55101290	2	X
		WASHER/SPRING	M3	55300010	2	X
		SCREW	CUP M3x5	55190211	2	X
		SCREW	P.M3x5	55100020	2	X

Item	Code No.	Parts Name		Specification	Q	R
42		SEAL/BLIND	EAM-1134	31103290	1	X
69		SEAL/CAUTION	EAM-1137	31103300	1	X
8	1904 8652	REEL/WINDING	EBM-0777	46100034	1	C
		CLAMP/FERRITE	ZCAT1518-0730	21002000	2	X
		CLAMP/FERRITE	TFC-23-11-14	40300300	2	X
	1904 8735	INSULOCK TIE	CV-075	40300500	2	X
77		HARNESS ASSY	CA24-821	47410000	1	X
76		HARNESS ASSY	EAA-2647	47411190	1	X
		WIRE CLAMP	S-508	40200030	2	X
		UL TAPE				X
115		LABLE/RATING(E/P)	EAR-0060A	32105380	1	X
115		LABEL/RATING(UL/CUL)	EAR-0092	32108000	1	X
		LABEL/FCC	EAR-0039 (UL/CUL ONLY)	31100251	1	X
		LABEL/CANADIAN	EAR-0095	31100160	1	X
		RIVET	NSA-3-2	25400110	2	X
125		SCREW	T.P(P-TITE) 3x8	55100250	18	X
120		SCREW	T.P(P-TITE) 3x6	55100249	10	X
136		SCREW	PTT-P. 2.3x6	55100402	2	X
132		SCREW	P. 3x6 SW	55100120	3	X
116		SCREW	P. 3x10	55100159	8	X
137		SCREW	P. 3x6 SW.PW	55100122	4	X
		SCREW	T.P 3x5	55190211	8	X
135		SCREW	B. 3x4	55100775	5	X
140		SCREW	P. 2.3x3	55100043	2	X
139		SCREW	P. 2x3	55100010	2	X
128		SCREW	P. 3x5	55100020	2	X
131		SCREW	3x8 SW	55100130	1	X
117		SCREW	PTT-P. 4x6	55100481	8	X
118		SCREW	P. 1/8" x6	55101300	4	X
141		SCREW	BTT-P. 3x8	55180080	6	X
130		SCREW	BTT-P. 2.6x5	55190710	2	X
129		SCREW	PTT-P. 2.6x8	55100413	4	X
127		SCREW	PTT-P. 3x6	55100420	2	X
121		SCREW	B. 3x8 (Ni)	55100700	4	X
119		SCREW	TP. 3x10	55190270	4	X
145		NUT	M3	55200010	3	X
		CLAMP/FERRITE	ZCAT2032-0930	21002010	1	X
		INSULOCK TIE	Comes with the above part		1	X
	1904 8618	SET/ CONTROL KEY	6KB1J-603	47100626	1	C
	1904 8619	CORD/POWER	LS-13L (UL/CSA ONLY)	20603080	1	C
	1904 8620	COVER/WET PROTECTION	EBM-1133	62000210	1	C
	1904 8621	CLIP/BILL (UPPER)	EAM-0989 No. 345	41500231	1	C
		CLIP/BILL (BOTTOM)	EAM-0990 No. 345	set	1	-
	1904 8653	SHAFT/PAPER	EAM-0889 GREY No. 345	41500091	1	C

MCR (2-TRACK) UNIT

Item	Code No.	Parts Name		Specification	Q	R
112	1904 8772	PCB/MCR CONTROL	EAL-0328	00400910	1	C
U1.3	1904 8773	LSI	UPD71051C	00500740	2	A
U5.6	1904 8774	IC/MOS	TC74HC14AP	00606290	2	A
C7		CAPACITOR/ELECTROLYTIC	10uF 16V	01200868	1	X
C1.3.4-6.8		CAPACITOR/CERAMIC	0.1uF 50V	01102010	7	X
R1.3		RESISTOR	25SJ 100Kohm	10601250	3	X
RP1		RESISTOR/ARRAY	100Kx6	01700145	1	X
CN1	1904 8775	CONNECTOR	53047-1210	03202140	1	C
CN2	1904 8776	CONNECTOR	BTK24S-2S	03200710	1	C
51	1904 8777	MCR UNIT	ZU-M1242S1	60700650	1	A
83	1904 8778	HARNESS ASSY	EAA-2508A	47411031	1	C


K/B UNIT
PROTECTION TAPE
TO HDD
TO 'G'
CN 1
CN 2
CN 3
CN 4
CN 6
CN 7
CN 8
CN10
CN11
CN12
CN13
CN14
CN15
CN16
CN17
CN18

PRINTER CONTROLLER

Item	Code No.	Parts Name		Specification	Q	R
		PCB	EBL-0344	00400914	1	X
U1	1904 8481	IC	TC232CPE	00501420	1	A
U2	1904 8482	LSI	M37702S4BFP	00508750	1	A
U3	1904 8483	IC/MOS	TC74HC14AF-TP1	00606770	1	A
U4.5	1904 8484	IC/MOS	HD74HC573FP-TL	00608750	2	A
U6	1904 8485	IC	LB1650	00601090	1	A
U7.14	1904 8486	IC/MOS	TC74AC32F-TP1	00606412	2	A
U8	1904 8487	IC/MOS	TC74HC04FP-TP1	00606630	1	A
U9	1904 8488	LSI/FLASH-ROM	M5M28F102AFP-10	00600555	1	A
U10	1904 8489	IC	TA8428K	00606310	1	A
U11	1904 8490	LSI/CG	PT500CG2	00501300	1	A
U12.13	1904 8491	LSI/S-RAM	SRM2B256SLMX70	00502430	2	A
U15	1904 8492	IC	M51953AL	00600265	1	A
Q1.9.11.13	1904 8493	TRANSISTOR	2SA1115	00700570	4	B
Q2.4.8.10.12	1904 8494	TRANSISTOR	2SC2603	00700630	5	B
Q3	1904 8495	TRANSISTOR	2SD1817	00700190	1	B
Q5.6	1904 8496	TRANSISTOR	2SD986	00700240	2	B
Q7	1904 8497	FET	2SJ177	00700910	1	B
D1	1904 8498	DIODE/ZENER	RD3.9EB2	01000005	1	B
D2.14-17	1904 8499	DIODE	1SS176	00800071	5	B
D3	1904 8500	DIODE/ZENER	RD8.2EB2	01000170	1	B
D4-13	1904 8501	DIODE	RL102-E	00800915	10	B
R1		RESISTOR	16SJ 56 ohm	01606007	1	X
R2.32.44.51. 53.57.58. 68-72.74		RESISTOR	16SJ 4.7Kohm	01606070	14	X
R3.66		RESISTOR	16SJ 22Kohm	01606105	2	X
R4		RESISTOR	16SJ 470 ohm	01606027	1	X
R5.8.23		RESISTOR	16SJ 100Kohm	01606120	3	X
R6		RESISTOR	16SJ 75Kohm	01606115	1	X
R7.14.17.25. 47.49.61-63		RESISTOR	16SJ 33 ohm	01606003	9	X
R9.16		RESISTOR	16SJ 3.3Kohm	01606063	2	X
R10-12.19-21. 36.40.48.50		RESISTOR	16SJ 47Kohm	01606110	10	X
R13.26.27.29. 35.38.39.52. 56.64.77.78		RESISTOR	16SJ 10Kohm	01606090	12	1
R15		RESISTOR	16SJ 20Kohm	01606180	1	X
R18		RESISTOR	16SJ 2Kohm	01606058	1	X
R22		RESISTOR	JUMP WIRE L=5	60100040	1	1
R28		RESISTOR	16SJ 30 ohm	01606030	1	X
R30		RESISTOR	16SJ 200 ohm	01606018	1	X
R31.41		RESISTOR	16SJ 220 ohm	01606020	2	X
R33.34.43.45. 46.54.55.59. 60.73.75.79		RESISTOR	16SJ 1Kohm	01606060	12	X
R37		RESISTOR	1W 47 ohm	01608010	1	X
R42		RESISTOR	16SJ 1Mohm	01606040	1	X
R65		RESISTOR	16SJ 6.8Kohm	01606083	1	X
R76		RESISTOR	45SJ 2.2Kohm	01601800	1	X

Item	Code No.	Parts Name		Specification	Q	R
CI.6.9		CAPACITOR/ELECTROLYTIC	10uF 16v	01200868	3	X
C2.4.9		CAPACITOR/ELECTROLYTIC	100uF 50v	01200910	2	X
C3.4.7.8.10.11.19.24.25.27.30.32.34.36.37.39-43.45-48.50-52		CAPACITOR/CERAMIC	0.1uF 50v	01100030	27	X
C5.12.53		CAPACITOR/CERAMIC	0.01uF 50v	01100010	3	X
C13-16.22.23		CAPACITOR/CERAMIC	1000PF 50v	01100250	7	X
C17.18.20.21		CAPACITOR/ELECTROLYTIC	10uF 25v	01200870	4	X
C26		CAPACITOR/ELECTROLYTIC	100uF 16v	01200906	1	X
C28.29		CAPACITOR/CERAMIC	22PF 50v	01100090	2	X
C31.38.44		CAPACITOR/CERAMIC	100PF 50v	01100170	3	X
C33		CAPACITOR/ELECTROLYTIC	47uF 50v	01200200	1	X
CN1	1904 8502	CONNECTOR	B25P-SHF-1AA	04000190	1	C
CN2	1904 8503	CONNECTOR	B4B-XH-A	04000230	1	C
CN3	1904 8504	CONNECTOR	53047-0610	03200582	1	C
CN6	1904 8505	CONNECTOR	B2B-XH-A	04000500	1	C
CN7	1904 8506	CONNECTOR	53047-0410	04003053	1	C
CN8	1904 8507	CONNECTOR	5267-04A-X	04003101	1	C
CN9	1904 8508	CONNECTOR	TM2REA-1212	03202020	1	C
CN10	1904 8509	CONNECTOR	B3P-VH	04002710	1	C
FB1-4		FERRITE BEAD	EXCELSA35V	62100060	4	X
L1-4		INDUCTOR	ELEXT101KA(100uH)	62100080	4	X
JP1		WIRE/JUMPER	0Ω	01605015	1	X
F1	1904 8510	FUSE	CCV-2	02500617	1	A
Y1	1904 8511	OSCILLATOR/CRYSTAL	AT-51 14.7456MHz	02300340	1	A
87	1904 8512	CABLE/JOINT	EAA-2485B	47410930	1	C
		CLAMP/FERRITE	ZCAT1518-0730	21002000	1	X
		INSULOCK TIE (comes with the above part)			1	X
56	1904 8513	PRINTER CONTROLLER ASS'Y		010145-01	1	A

KEYBOARD UNIT

Item	Code No.	Parts Name		Specification	Q	R
108	1904 8514	PCB	EBK-0146	13507470	1	C
101		PLATE/KEY TOP	EBA-2707	11402810	1	X
105		FRAME/KEYBOARD COVER	EDM-0917 NO.345	10201341	1	X
102	1904 8515	BASE TOP(1X1)	EBM-0614 YB1	11600230	84	C
150	1904 8516	BASE TOP(1X2)	EBM-0615 YB2	11600240	3	C
100	1904 8517	CAP/KEY(1x1)	EBM-0612-A YC1	11500140	84	C
149	1904 8518	CAP/KEY(1x2)	EBM-0613-A YC2	11500150	3	C
104	1904 8519	HOUSING/STEM	EBM-0409	10300030	90	C
	1904 8520	RUBBER/CONTACT	CA23-443	10300010	84	C
106		STEM/KEY	CC22-466	set	84	-
103	1904 8521	SPRING/KEY	CA22-444	10400210	84	C
151	1904 8522	PIN/GUIDE	CB22-646	12100010	3	C
109		PLATE/KEYBOARD COVER	ECM-1154	10101235	1	X
110		SHEET/INSULATION	170 X 125 X 0.2t	13100420	1	X
107	1904 8523	SHEET/RUBBER	ECM-0967	12300740	1	A
		SCREW	TP(P-Tite)2X8	55100247	18	X
113	1904 8524	HARNESS ASS'Y	EAA-2504	47411000	1	C
	1904 8525	KEYBOARD ASS'Y		020013-03	1	C

KEYBOARD CONTROLLER UINT

Item	Code No.	Parts Name		Specification	Q	R
		PCB	EBL-0317	13507475	1	X
U15	1904 8526	LSI	M38062M3-238FP	00507950	1	A
U7	1904 8527	LSI/S-RAM	BR6216B-10LL	00502220	1	A
U25	1904 8528	LSI/EP-ROM	TMS27C512-10JL	00501510	1	A
U5	1904 8529	IC/MOS	TC74HC154AP	00606440	1	A
U12.13	1904 8530	IC/MOS	TC74HC04AP	00606250	2	A
U8	1904 8531	IC/MOS	TC74HC138AP	00602030	1	A
U14	1904 8532	IC/TTL	HD74LS07P	00608013	1	A
U9-11	1904 8533	IC	M54564P	00600175	3	A
T2.4	1904 8534	TRANSISTOR	2SC1815(Y)	00701050	2	B
T3	1904 8535	TRANSISTOR	2SC3303(Y)	00702140	1	B
T6	1904 8536	TRANSISTOR	2SB744	00700210	1	B
T7	1904 8494	TRANSISTOR	2SC2603	00700630	1	B
D2-17.22-25	1904 8538	DIODE	MA700	00800012	20	B
D18.35-37	1904 8539	DIODE	IN4148	00800920	4	B
ZD1	1904 8541	DIODE/ZENER	RD9.1EB2	01000200	1	B
ZD2	1904 8542	DIODE/ZENER	RD4.3EB2	01000023	1	B
R12.13		RESISTOR	25SJ5.1 ohm	01600508	2	X
R15		RESISTOR	25SJ270 ohm	01600656	1	X
R9		RESISTOR	25SJ390 ohm	01600680	1	X
R10.40-42		RESISTOR	25SJ470 ohm	01600690	4	X
R14.23		RESISTOR	25SJ1Kohm	01601000	2	X
R22.56		RESISTOR	25SJ4.7Kohm	01601080	2	X
R24.25.46.47		RESISTOR	25SJ10Kohm	01601140	7	X
R35-39.43-45		RESISTOR	25SJ47Kohm	01601220	8	X
R26		RESISTOR	25SJ47 ohm	01600560	1	X
R11		RESISTOR	1W100 ohm	01604111	1	X
R8		RESISTOR	25SJ51Kohm	01601225	1	X
C25.28		CAPACITOR/CERAMIC	22pF 50V	01100090	2	X
C2		CAPACITOR/CERAMIC	680pF 50V	01100240	1	X
C5.29		CAPACITOR/CERAMIC	1000pF 50V	01100250	2	X
C23		CAPACITOR/CERAMIC	0.01uF 50V	01100010	1	X
C4.21.22.30.		CAPACITOR/CERAMIC	0.1uF 50V	01100030	11	X
C3		CAPACITOR/CERAMIC	3300pF 50V	01101020	1	X
CA1		CAPACITOR/ARRAY	B9HC0119-15N	01102060	1	X
C8		CAPACITOR/ELECTROLYTIC	1uF 50V	01200850	1	X
C24.27.32.34		CAPACITOR/ELECTROLYTIC	10uF 16V	01200868	4	X
C20		CAPACITOR/ELECTROLYTIC	10uF 25V	01200870	1	X
C26		CAPACITOR/ELECTROLYTIC	47uF 16V	01200890	1	X
C1.6		CAPACITOR/ELECTROLYTIC	470uF 16V	01200921	2	X
C7		CAPACITOR/ELECTROLYTIC	220uF 50V	01200916	1	X
L1-5.10		CORE/BEAD	EXCELSA35V	62100060	6	X
L6-9		INDUCTOR	ELEXT101KA	62100080	4	X
RA2		RESISTOR/ARRAY	10KX8	01700030	1	X
RA1		RESISTOR/ARRAY	47KX8	01700090	1	X
CN1	1904 8543	CONNECTOR	B24P-SHF-1AA	04000180	1	C
CN2	1904 8544	CONNECTOR	B6P-SHF-1AA	04000050	1	C
CN3	1904 8545	CONNECTOR	B9P-SHF-1AA	04000080	1	C

Item	Code No.	Parts Name		Specification	Q	R
CN4	1904 8546	CONNECTOR	B5P-SHF-1AA	04000040	1	C
CN5	1904 8547	CONNECTOR	BTK24P-2S-H	03200720	1	C
CN6	1904 8548	CONNECTOR	B12B-XH-A	04000270	1	C
CN7	1904 8549	CONNECTOR	B4P-SHF-1AA	04000030	1	C
CN8	1904 8550	CONNECTOR	171825-4	04004000	1	C
CN10	1904 8551	CONNECTOR	B6B-XH-A	04000232	1	C
CN11	1904 8552	CONNECTOR	B2B-EH-A	04001810	1	C
CN12	1904 8553	CONNECTOR	B11B-XH-A	04000260	1	C
CN14	1904 8554	CONNECTOR	B2P-SHF-1AA	04000010	1	C
CN13	1904 8555	CONNECTOR	B2B-XH-A	04005000	1	C
CN19	1904 8556	CONNECTOR	5267-02A-X	04003100	1	C
F1	1904 8557	FUSE	CCV1 125V 1A	02500615	1	A
CV1	1904 8558	TRANSFORMER/CONVERTER	C301	01901530	1	A
Y1	1904 8559	OSCILLATOR/CRYSTAL	10.000MHz AT-51	02300400	1	A
148		SPACER/ PCB	MSPLS-6	35100135	4	X
JP1	1904 8560	CONNECTOR	PS-2PF-D4T1-PKL1	03201050	1	C
		SOCKET	PS-2SH4-1	03201040	1	C
U25		SOCKET/IC	DICF-28CS-E	02200120	1	C
111	1904 8561	K/B CONTROLLER ASSY		0200147-04	1	A

PRINTER BLOCK

Item	Code No.	Parts Name		Specification	Q	R
15	1904 8562	PRINTER UNIT/THERMAL	LT380H	24701540	1	A
17	1904 8563	AUTO CUTTER	ACS-132	24701690	1	A
39	1904 8564	MOTOR/WINDING	RK-370C-18260	45700500	1	A
40	1904 8565	RUBBER/WINDING	EAM-0800	45800120	1	A
80	1904 8566	HERNESS ASSY	EAH-0001	47411620	1	C
75	1904 8567	PCB	EAL-0345	00400916	1	X
78	1904 8568	HARNESS ASSY	EAH-0024	447412061	1	C
	1904 8569	CONNECTOR	HLEM30S-1	03200578	1	C

FEED PCB ASSY

Item	Code No.	Parts Name		Specification	Q	R
50	1904 8570	PCB	EAL-0330	00400770	1	X
	1904 8571	SWITCH/PUSH	JPM1030-0201	13700230	1	A
	1904 8572	LED	GL1HD111	02700080	1	B
82	1904 8573	HARNESS ASSY	EAA-2502	47410980	1	C

CONTROL KEY ASSY

Item	Code No.	Parts Name		Specification	Q	R
49	1904 8574	SWITCH/CONTROL	KSL-B74FH01(1)-B1J	12000365	1	A
81	1904 8575	HARNESS	EAA-2507	47411030	1	C

K/B BCR TURN SW ASSY

Item	Code No.	Parts Name		Specification	Q	R
54	1904 8576	SWITCH/SLIDE	SLC2200 L=7	10700200	1	C
92	1904 8577	HARNESS ASSY	EAA-2503B	47410990	1	C
		TUBE	ø2 L=10	55700005	2	X

FDD UNIT

Item	Code No.	Parts Name		Specification	Q	R
28	1904 8578	FDD	MF355F-2250MG	60700630	1	A
99	1904 8579	CABLE/JOINT	EAA-2495	47410941	1	C

POWER SUPPLY BLOCK

Item	Code No.	Parts Name		Specification	Q	R
60		INLET	JR-101S	20300510	1	X
61	1904 8580	SWITCH/POWER	SJ-WZH4A-03BB2	20200115	1	C
94-1	1904 8581	HARNESS ASSY	EAA-2492D	47410937	1	C
94-2	1904 8582	HARNESS ASSY	EAA-2493A	47410938	1	C
94-3	1904 8583	HARNESS ASSY	EAA-2648	47411200	1	C
52	1904 8584	POWER SUPPLY UNIT	KCM150-51C	20100010	1	A
97		WIRE ULH1672	AWG22 WHITE L=330	20500380	1	X
		TUBE	ø5 L=20	55700610	3	X
		TUBE	ø4 L=20	55700600	4	X

CABLE ASSY

Item	Code No.	Parts Name		Specification	Q	R
84	1904 8585	CABLE	EAA-2497	47410950	1	C
85	1904 8586	CABLE	EAA-2498	47410960	1	C
93	1904 8587	CABLE/DIN CONNECTOR	EAA-2799A	47410970	1	C
89	1904 8588	CABLE/LCD	EAH-0055	47413169	1	C
	1904 8717	SHIELD/SHRINK	30mmX320L	55700350	1	X
96	1904 8589	VFD(2X20) CABLE ASSY	EAA-2531A RELAY CABLE	47411050	1	C
		CLAMP/FEERITE	ZCAT1518-0730	21002000	1	X
		INSULOCK TIE (comes with the obove part)			1	X
88	1904 8590	CABLE/BACK LIGHT	EAA-2534B RELAY CABLE	47411052	1	C
91	1904 8591	CABLE/FILTER RELAY	EAH-0014	47412000	1	C
90	1904 8592	CABLE/FILTER RELAY	EAH-0015	47412010	1	C

CONTRAST PCB ASSY

Item	Code No.	Parts Name		Specification	Q	R
59	1904 8593	PCB	EAL-0331	00400780	1	C
	1904 8594	RESISTOR/VARIABLE	EVLHFKA05	03100210	1	C
98	1904 8595	HARNESS ASSY	EAA-2490	47410935	1	C

CASE UNIT

Item	Code No.	Parts Name		Specification	Q	R
2	1904 8596	CASE/BOTTOM	NO.345	24406020	1	X
10	1904 8597	FOOT/RUBBER	Comes with the above parts	Set	4	-
12	1904 8598	COVER/FDD	EBM-0926 NO.345	24250381	1	C
11	1904 8599	COVER/POWER SWITCH	EBM-0937 NO.345	24250391	1	C
9	1904 8600	COVER/BACK	EBM-0927 NO.345	24250401	1	C
1	1904 8601	CASE/UPPER	EDM-0915 NO.345	24106030	1	X
4	1904 8602	BASE/SHAFT	EBM-0930 NO.345	24250411	1	X
5	1904 8603	COVER/BASE/SHAFT	EAM-0931 NO.345	24250421	1	X
6	1904 8604	COVER/BASE/SHAFT	EAM-0932 NO.345	24250431	3	X
38	1904 8605	CAM LOCK A	EBM-0303	47300502	1	C
3	1904 8606	COVER/PRINTER	EDM-1047 NO.345	24206030	1	C
13	1904 8607	BLIND PIECE/SCREW	EAM-0954 NO.345	46200140	4	X

MOUNT PARTS

Item	Code No.	Parts Name		Specification	Q	R
30		BRACKET/FDD	EAM-0975 LEFT	46501073	1	X
31		BRACKET/FDD	EAM-1153 RIGHT	41600052	1	X
26		PIECE/DIN CONNECTOR FITTING	EAM-0950	46001050	1	X
24		PANEL/BACK CONNECTOR	ECM-0944	45400280	1	X
27		PLATE/INTERFACE	ECM-0965	45400290	1	X
34		PLATE/SET	EAM-1014	45300590	1	X
35		PIECE/AC INLET FITTING	EBM-1120	46001061	1	X
25		PIECE/RISE BOARD FITTING	EAM-0949	46001070	1	X
36		PLATE/ COVER	EAM-1121	45300591	1	X
18		BRACKET/POLE SUPPORT	EAM-0951	46501074	2	X
37		BARRIER	EAM-1150	40800650	1	X
20		HOLDER/HDD	EAM-0945 LEFT	11104050	1	X
21		HOLDER/HDD	EAM-0974 RIGHT	11104060	1	X
14		CHASSIS/PRINTER	EBM-1044	41500650	1	X
7		CASE/WINDER	EDM-1046 NO.345	41500083	1	X
72		BUSH	EL-10 L=60m/m	49700100	1	X
31		PLATE/BASE SHIELD	EDM-1063	10101230	1	X
32	1904 8608	COVER/SLOT	EAM-1001	46501110	2	C
		GASKET	UC-300281 L=720m/m	03600010	1	X
		GASKET	UC-3E0595 L=230m/m	03600050	1	X
62	1904 8609	CAP/RUBBER	EAM-0992	45800131	1	C
22		SPACER	3X6.5(CM)	35102020	4	X
71		CUSHION	EAM-1016	60200530	1	X
23		RUBBER/HDD HOLDER	EAM-0968	11104070	4	X
		SCREW	M4X15 EAM-1155	55101350	1	X
63		BLIND/SMART CARD	EAM-1083	41500340	1	X
41	1904 8610	LABEL/CONTROL KEY SW	EAM-0983	31700122	1	C
48		LABEL/CLERK KEY	(EAM-0970)	31700123	1	X
55	1904 8611	BOARD/MOTHER		60700910	1	A
57	1904 8612	CARD/RISER		60700920	1	A
19	1904 8613	HDD		60700930	1	C
58	1904 8614	BOARD/FILTER		60700940	1	C
86	1904 8615	CABLE/D-SUB CONNECTOR	EAA-2625	47411151	1	C
147		SPACER	SA55M3-8 BS	35100025	3	X
95	1904 8616	CABLE/JOINT	EAA-2549B	47411090	1	C
		SCREW	CUP M2X5	55190211	4	X
133		FIXER	7A0044-4K0830	55101360	2	X
146		NUT	UNC NO.4-40	55101290	2	X
144		WASHER/SPRING	M3	55300010	2	X
		SCREW	P.M3 x5	55100020	2	X
42		SEAL/BLIND	EAM-1134	31103290	1	X
69		SEAL/CAUTION	EAM-1137	31103300	1	X
8	1904 8617	REEL/WINDING	EBM-1045	46100035	1	C
		REEL/GUIDE	CB24-392	46000010	1	X
		CLAMP/FERRITE	TFC-23-11-14	40300300	2	X
	1904 8735	INSULOCK TIE	CV-075	40300500	2	X
		HARNESS ASSY	CA24-821	47410000	1	X
76		HARNESS ASSY	EAA-2647	47411190	1	X
		CLAMP/WIRE	S-508	40200030	2	X
		CLAMP/FERRITE	ZCAT1518-0730	21002000	2	X

Item	Code No.	Parts Name		Specification	Q	R
	43	SEAL/BLIND	EBM-1252(L TYPE)	31103330	1	X
		SEAL/BLIND	EAM-1253(S TYPE)	31103340	1	X
	44	SEAL/BLIND	EAM-1255	31103350	1	X
125		SCREW	T.P(P-TITE)3X8	55100250	18	X
120		SCREW	T.P(P-TITE)3X6	55100249	10	X
136		SCREW	PTT-P.2.3X6	55100402	2	X
		SCREW	P.3X6 SW	55100120	3	X
		SCREW	P.3X10	55100159	4	X
137		SCREW	P.3X6 SW.PW	51100122	4	X
		SCREW	T.P3X5	55190211	8	X
		SCREW	B.3X4	55100775	5	X
140		SCREW	P.2.3X3	55100043	2	X
139		SCREW	P.2X3	55100010	2	X
		SCREW	P.3X5	55110020	2	X
131		SCREW	P.3X8 SW	55100130	1	X
117		SCREW	PTT-P.4X6	55100481	8	X
118		SCREW	P.1/8INCH SCREWX6	55101300	4	X
141		SCREW	BTT-P.3X8	55180080	6	X
130		SCREW	BTT-P.2.6X5	55190710	2	X
129		SCREW	PTT-P.2.6X8	55100413	4	X
127		SCREW	PTT-P.3X6	55100420	2	X
121		SCREW	B.3X8(NI)	55100700	4	X
119		SCREW	TP.3X10	55190270	4	X
145		NUT	M3	55200010	3	X
115		LABEL/RATING(EP)	EAR-0061A	32105390	1	X
115		LABEL/RATING(UL/CSA)	EAR-0093	32108010	1	X
		LABEL/FCC	EAR-0039(UL/CSA)	31100251	1	X
		LABEL/CANADIAN	EAR-0095(UL/CSA)	31100160	1	X
		RIVET	NSA3-2(UL/CSA)	25400110	2	X

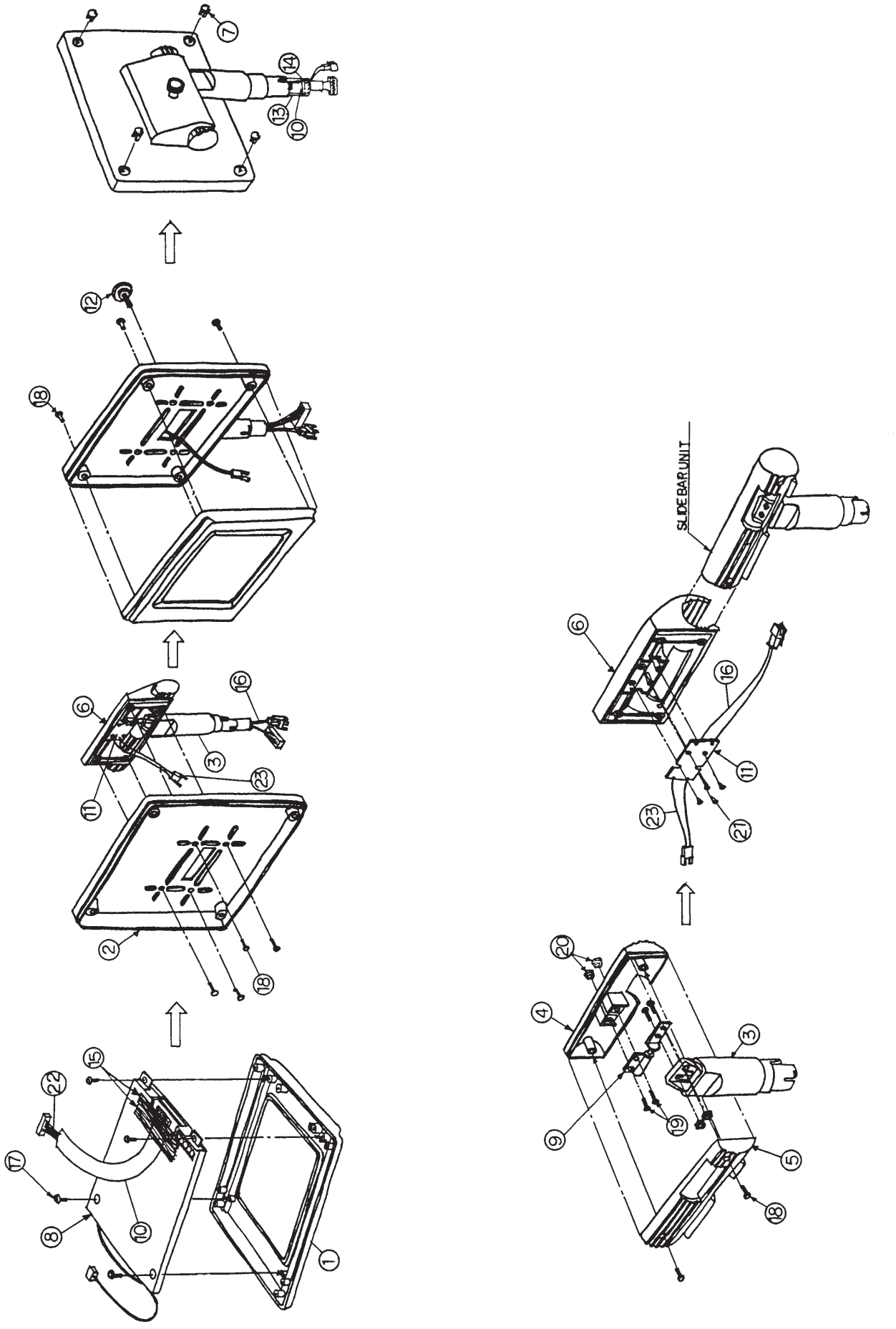
PACKING

Item	Code No.	Parts Name		Specification	Q	R
	1904 8618	SET/CONTROL KEY	6KB1J-603	47100626	1	C
	1904 8619	CORD/POWER	LS-13L	20603080	1	C
		CLAMP/FERRITE	ZCAT2032-0930	21002010	1	X
		INSULOCK TIE				X
	1904 8620	COVER/WATER PROOF	EBM-1133	62000210	1	C
	1904 8621	CLIP/BILL	EAM-0989 NO.345	41500231	1	C
	1904 8622	SHAFT/PAPER	EAM-1043 NO.345	41500860	1	C

MCR (2-TRACK) UNIT

Item	Code No.	Parts Name		Specification	Q	R
112	1904 8772	PCB/MCR CONTROL	EAL-0328	00400910	1	C
U1.3	1904 8773	LSI	UPD71051C	00500740	2	A
U5.6	1904 8774	IC/MOS	TC74HC14AP	00606290	2	A
C7		CAPACITOR/ELECTROLYTIC	10uF 16V	01200868	1	X
C1.3.4-6.8		CAPACITOR/CERAMIC	0.1uF 50V	01102010	7	X
R1.3		RESISTOR	25SJ 100Kohm	10601250	3	X
RP1		RESISTOR/ARRAY	100Kx6	01700145	1	X
CN1	1904 8775	CONNECTOR	53047-1210	03202140	1	C
CN2	1904 8776	CONNECTOR	BTK24S-2S	03200710	1	C
51	1904 8777	MCR UNIT	ZU-M1242S1	60700650	1	A
83	1904 8778	HARNESS ASSY	EAA-2508A	47411031	1	C

SA-5001M / SA-5002C

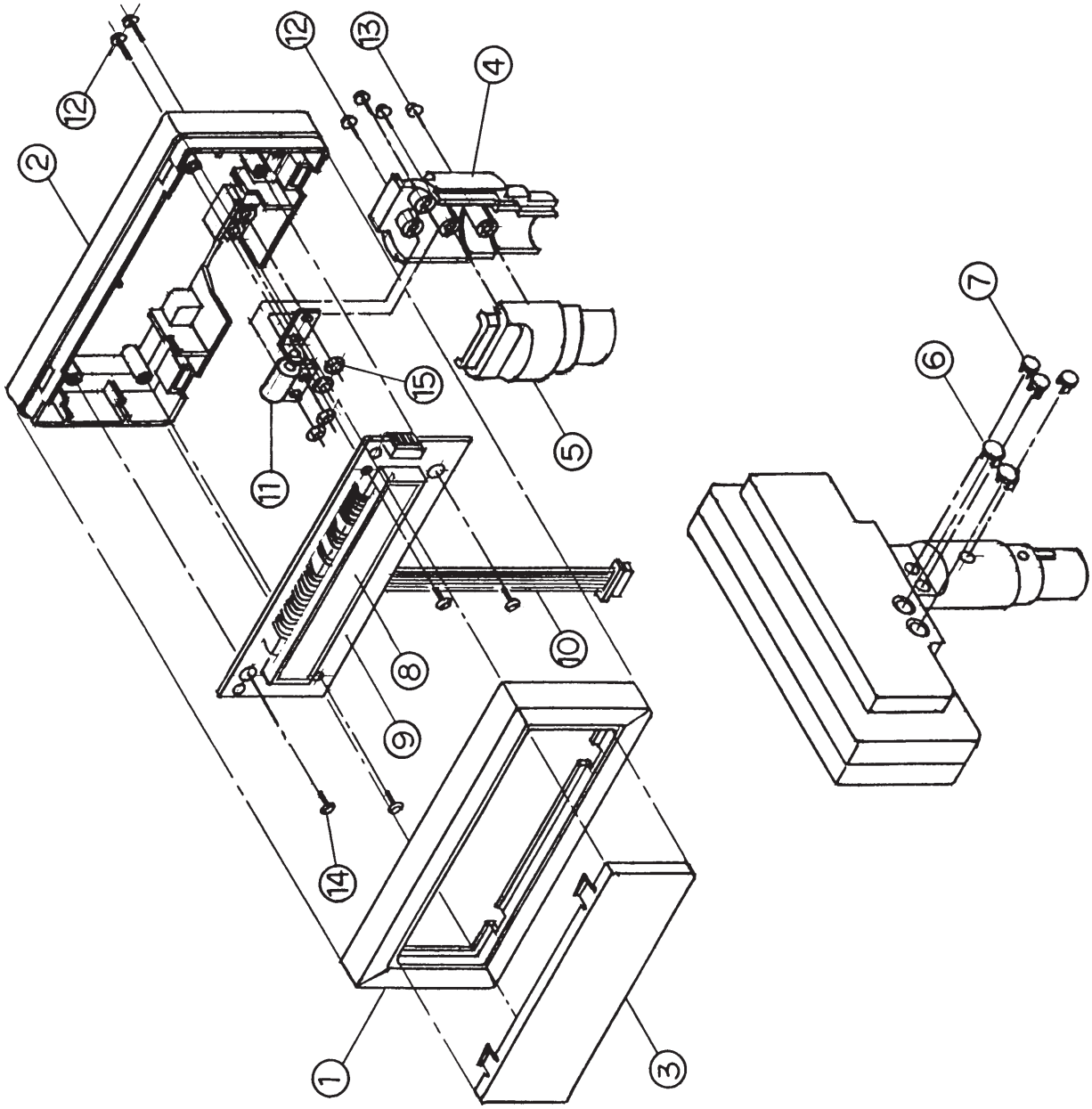


SA5001M

Item	Code No.	Parts Name		Specification	Q	R
8	1904 8731	LCD	LM64183P	12900610	1	A
	1904 8732	HARNESS ASSY	EAA-2511A	47411034	1	C
	1904 8733	HARNESS ASSY	EAA-2488A	47404098	1	C
10	1904 8717	SHIELD/SHRINK	30mmxL270	55700350	1	X
	1904 8735	INSULOCK TIE	CV-075	40300500	1	X
1	1904 8736	CASE/LCD (FRONT)	(9.4) No. 345	41500142	1	C
2	1904 8719	CASE/LCD (REAR)	EDM-0979 No. 345	41500143	1	C
3	1904 8720	SHAFT/LCD	EBM-0938 No. 345	41500161	1	X
4	1904 8721	SLIDE BAR/LCD (FRONT)	EBM-0939 No. 345	41500171	1	X
5	1904 8722	SLIDE BAR/LCD (REAR)	EBM-0940 No. 345	41500181	1	X
6	1904 8723	HOLDER/SLIDE BAR	ECM-0973 No. 345	41500700	1	X
7	1904 8670	PIECE/SCREW BLIND	EAM-0955 No. 345	41500720	4	X
9	1904 8725	HINGE	TH-122-2A	61700105	1	X
		SCREW	P.M4x10	55100215	4	X
		SCREW	BTT-P.3x8	55180080	10	X
		NUT	M4	55200020	4	X
		SCREW	PTT-P.3x6	55100420	4	X
		SCREW	S.2x6	55100598	4	X
11	1904 8727	INVERTER/DC-AC	CXA-M10L-L	02801510	1	A
	1904 8728	HARNESS ASSY	EAA-2487A	47410932	1	C
		CLAMP/FERRITE	ZCAT1518-0730	21002000	1	X
	1904 8730	SHIELD/SHRINK	40mmxL80	55700355	1	X

SA5002C

Item	Code No.	Parts Name		Specification	Q	R
8	1904 8713	LCD	LM64C55	12900620	1	A
22	1904 8714	CABLE ASSY	EAH-0054	47404215	1	C
	1904 8715	CN PWD	EAL-0335	00400790	1	X
	1904 8716	CONNECTOR	DF9-31S-1V(20)	03202060	1	C
10	1904 8717	SHIELD/SHRINK	30mmxL270	55700350	1	X
14	1904 8735	INSULOCK TIE	CV-075	40300500	1	X
1	1904 8718	CASE/LCD (FRONT)	EDM-1165 No. 345	41500144	1	C
2	1904 8719	CASE/LCD (REAR)	EDM-0979 No.345	41500143	1	C
3	1904 8720	SHAFT/LCD	EBM-0938 No. 345	41500161	1	X
4	1904 8721	SLIDE BAR/LCD (FRONT)	EBM-0939 No. 345	41500171	1	X
5	1904 8722	SLIDE BAR/LCD (REAR)	EBM-0940 No. 345	41500181	1	X
6	1904 8723	HOLDER/SLIDE BAR	ECM-0973 No. 345	41500700	1	X
7	1904 8670	PIECE/SCREW BLIND	EAM-0955 No. 345	41500720	4	X
9	1904 8725	HINGE	TH-122-2A	61700105	1	X
19		SCREW	P.M4x10	55100215	4	X
18		SCREW	BTT-P.3x8	55180080	10	X
20		NUT	M4	55200020	4	X
17		SCREW	PTT-P.3x6	55100420	4	X
21		SCREW	S.2x6	55100598	4	X
24	1904 8726	PLATE/DISPLAY HOLDER	EAM-0994	45300592	4	X
11	1904 8727	INVERTER/DC-AC	CXA-M10L-L	02801510	1	A
16	1904 8728	HARNESS ASSY	EAA-2487A	47410932	1	C
23	1904 8729	HARNESS ASSY	EAA-2489 (COLOR)	47404100	1	C
		CLAMP/FERRITE	ZCAT1518-0730	21002000	1	X
13	1904 8730	SHIELD/SHRINK	40mmxL80	55700355	1	X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SA5060

Item	Code No.	Parts Name		Specification	Q	R
9	1904 8678	PCB/DISPLY	EAL-0316	48400800	1	X
8	1904 8679	DISPLAY TUBE	11LT-11G	11000330	1	A
10	1904 8680	HARNESS ASSY	EAA-2509	47411032	1	C
1	1904 8672	CASE/DISPLAY (FRONT)	ECM-0920	41500740	1	C
2	1904 8673	CASE/DISPLAY (REAR)	ECM-0921	41500750	1	C
3	1904 8674	FILTER/DISPLAY	EBM-0924	41500760	1	C
5	1904 8675	SHAFT/DISPLAY (FRONT)	EBM-0935	41500770	1	X
4	1904 8676	SHAFT/DISPLAY (REAR)	EBM-0934	41500780	1	X
6	1904 8670	BLIND PIECE/SCREW	EAM-0955	41500720	2	X
7	1904 8671	BLIND PIECE/SCREW	EAM-0956	41500790	3	X
11	1904 8677	HINGE	TH-122-3A	61700110	1	X
12		SCREW	P.M3x10 SW	55100170	4	X
13		SCREW	PTT-P.3x6	55100420	4	X
14		SCREW	BTT-P.3x10	55180084	2	X
15		NUT	M4	55200020	4	X
	1904 8689	CABLE/INTERCONNECTION	EAA-2513A	47400140	1	C
		SCREW	P.3x10	55100159	4	X
	1904 8602	BASE/SHAFT	EBM-0930	24250411	1	X
	1904 8603	COVER/BASE/SHAFT	EBM-0931	24250421	1	X

SA5061D

Item	Code No.	Parts Name		Specification	Q	R
9	1904 8654	PCB/DISPLAY	EAL-0315	48400820	1	X
U1	1904 8655	IC	SED2800FVA	00607520	1	A
U2	1904 8656	LSI	M38022M4-314SP	00508410	1	A
U3	1904 8481	IC	TC232CPE	00501420	1	A
U4	1904 8658	LSI/RAM	LH5116NA-10	00509010	1	A
8	1904 8659	DISPLAY TUBE	202-SD-08/GYK	11000400	1	A
	1904 8660	CUSHION	15x15x3t	60200105	2	X
TR1.3	1904 8534	TRANSISTOR	2SC1815(Y)	00701050	2	B
TR2	1904 8535	TRANSISTOR	2SC3303(Y)	00702140	1	B
D1-4	1904 8539	DIODE	IN4148	00800920	4	B
ZD1	1904 8541	DIODE/ZENER	RD9.1EB2	01000200	1	B
ZD2	1904 8542	DIODE/ZENER	RD4.3EB2	01000023	1	B
C2.11.12		CAPACITOR/ELECTROLYTIC	10uF 16V	01200868	3	X
C21.23		CAPACITOR/ELECTROLYTIC	470uF 16V	01200921	2	X
C22		CAPACITOR/ELECTROLYTIC	220uF 50V	01200916	1	X

Item	Code No.	Parts Name		Specification	Q	R
C5-9		CAPACITOR/ELECTROLYTIC	10uF 25V	01200870	5	X
C24		CAPACITOR/ELECTROLYTIC	1uF 50V	01200850	1	X
C3.4		CAPACITOR/CERAMIC	22pF 50V	01100090	2	X
C17		CAPACITOR/CERAMIC	100pF 50V	01100170	1	X
C18		CAPACITOR/CERAMIC	220pF 50V	01100200	1	X
C27		CAPACITOR/CERAMIC	680pF 50V	01100240	1	X
C30		CAPACITOR/CERAMIC	1000pF 50V	01100250	1	X
C1.10.13-16.29		CAPACITOR/CERAMIC	0.1uF 50V	01100030	7	X
C28		CAPACITOR/CERAMIC	3300pF 500V	01101020	1	X
R15		RESISTOR	25SJ200 ohm	01600630	1	X
R9		RESISTOR	25SJ390 ohm	01600680	1	X
R10		RESISTOR	25SJ470 ohm	01600690	1	X
R14		RESISTOR	16SJ1Kohm	01606060	1	X
R8		RESISTOR	25SJ50Kohm	01601224	1	X
R1-3.16		RESISTOR	25SJ10Kohm	01601140	4	X
R4.5		RESISTOR	25SJ100Kohm	01601250	2	X
R11		RESISTOR	1W100 ohm	01604111	1	X
R12.13		RESISTOR	25SJ7.5 ohm	01600507	2	X
RA1.2		RESISTOR/ARRAY	47Kx4	01700060	2	X
R3.4		RESISTOR/ARRAY	47Kx8	01700090	2	X
Y1	1904 8635	OSCILLATOR/CRYSTAL	7.3728MHZ	02300370	1	A
10	1904 8667	CABLE/JOINT	EAA-2510A	47411033	1	C
CVT1	1904 8668	CONVERTER/DC-DC	C302	01901540	1	A
F1	1904 8669	FUSE	CCV1	02500615	1	A
FB1.2		CORE/BEAD	EXCELSA35V	62100060	2	X
J5		WIRE/JUMPER	L=10	60100010	1	X
6	1904 8670	PIECE/SCREW BLIND	EAM-0955 No. 345	41500720	2	X
7	1904 8671	PIECE/SCREW BLIND	EAM-0956 No. 345	41500790	3	X
1	1904 8672	CASE/DISPLAY (FRONT)	ECM-0920 No. 345	41500740	1	C
2	1904 8673	CASE/DISPLAY (REAR)	ECM-0921 No. 345	41500750	1	C
3	1904 8674	FILTER/DISPLAY	EBM-0924 GREEN	41500760	1	C
5	1904 8675	SHAFT/DISPLAY (FRONT)	EBM-0935 No. 345	41500770	1	X
4	1904 8676	SHAFT/DISPLAY (REAR)	EBM-0934 No. 345	41500780	1	X
11	1904 8677	HINGE	TH-122-3A	61700110	1	X
12		SCREW	P.M3x10 SW	55100170	4	X
13		SCREW	PTT-P.3x6	55100420	4	X
15		NUT	M3	55200010	4	X
	1904 8602	BASE/SHAFT	EBM-0930 No. 345	24250411	1	X
	1904 8603	COVER/BASE/SHAFT	EBM-0931 No. 345	24250421	1	X
14		SCREW	P.3x10	55100159	2	X

SA5062DH

Item	Code No.	Parts Name		Specification	Q	R
9	1904 8690	PCB/DISPLAY	EAL-0327	48400810	1	X
U1	1904 8691	IC	SED2800FVA	00607520	1	A
U2	1904 8656	LSI	M38022M4-314SP	00508410	1	A
U3	1904 8481	IC	TC232CPE	00501420	1	A
U4	1904 8527	LSI/RAM	BR6216B-10LL	00502220	1	A
8	1904 8695	DISPLAY TUBE	202-MD-07G	11000390	1	A
TR1.3	1904 8534	TRANSISTOR	2SC1815(Y)	00701050	2	B
TR2	1904 8535	TRANSISTOR	2SC3303(Y)	00702140	1	B
D1-4	1904 8539	DIODE	IN4148	00800920	4	B
ZD1	1904 8541	DIODE/ZENER	RD9.1EB2	01000200	1	B
ZD2	1904 8542	DIODE/ZENER	RD4.3EB2	01000023	1	B
C2.11.12		CAPACITOR/ELECTROLYTIC	10uF 16V	01200868	3	X
C21.23		CAPACITOR/ELECTROLYTIC	470uF 16V	01200921	2	X
C22		CAPACITOR/ELECTROLYTIC	220uF 50V	01200916	1	X
C5-9		CAPACITOR/ELECTROLYTIC	10uF 25V	01200870	5	X
C24		CAPACITOR/ELECTROLYTIC	1uF 50V	01200850	1	X
C3.4		CAPACITOR/CERAMIC	22pF 50V	01100090	2	X
C17		CAPACITOR/CERAMIC	100pF 50V	01100170	1	X
C18		CAPACITOR/CERAMIC	220pF 50V	01100200	1	X
C27		CAPACITOR/CERAMIC	680pF 50V	01100240	1	X
C30		CAPACITOR/CERAMIC	1000pF 50V	01100250	1	X
C1.10.13-??		CAPACITOR/CERAMIC	0.1uF 50V	01100030	7	X
C28		CAPACITOR/CERAMIC	3300pF 500V	01101020	1	X
R15		RESISTOR	25SJ200 ohm	01600630	1	X
R9		RESISTOR	25SJ390 ohm	01600680	1	X
R10		RESISTOR	25SJ470 ohm	01600690	1	X
R14		RESISTOR	25SJ1Kohm	01606060	1	X
R8		RESISTOR	25SJ50(51)Kohm	01601224	1	X
R1-3.16		RESISTOR	25SJ10Kohm	01601140	4	X
R4.5		RESISTOR	25SJ100Kohm	01601250	2	X
R11		RESISTOR	1W100 ohm	01604111	1	X
R6.7		RESISTOR	25SJ33Kohm	01601200	2	X
R12.13		RESISTOR	25SJ0 ohm	01605015	2	X
RA1.2		RESISTOR/ARRAY	47Kx4	01700060	2	X
RA3.4		RESISTOR/ARRAY	47Kx8	01700090	2	X
Y1	1904 8635	OSCILLATOR/CRYSTAL	7.3728MHZ	02300370	1	A
10	1904 8667	FLAT CABLE ASSY	EAA-2510A	47411033	1	C
CVT1	1904 8668	CONVERTER/DC-DC	C302	01901540	1	A
F1	1904 8669	FUSE	CCV1	02500615	1	A
FB1.2		CORE/BEAD	EXCELSA35V	62100060	2	X

Item	Code No.	Parts Name		Specification	Q	R
J5		WIRE/JUMPER	L=10	60100010	1	X
6	1904 8670	BLIND PIECE/SCREW	EAM-0955	41500720	2	X
7	1904 8671	BLIND PIECE/SCREW	EAM-0956	41500790	3	X
1	1904 8707	CASE/DISPLAY (FRONT)	ECM-0922	41500820	1	C
2	1904 8708	CASE/DISPLAY (REAR)	ECM-0923	41500830	1	C
3	1904 8709	FILTER/DISPLAY	EBM-0925	41500840	1	C
5	1904 8675	SHAFT/DISPLAY (FRONT)	EBM-0935	41500770	1	X
4	1904 8676	SHAFT/DISPLAY (REAR)	EBM-0934	41500780	1	X
11	1904 8677	HINGE	TH-122-3A	61700110	1	X
12		SCREW	P.M3x10 SW	55100170	4	X
13		SCREW	PTT-P.3x6	55100420	4	X
14		SCREW	BTT-P.3x10	55180084	2	X
15		NUT	M3	55200010	4	X
	1904 8602	BASE/SHAFT	EBM-0930	24250411	1	X
	1904 8603	COVER/BASE/SHAFT	EBM-0931	24250421	1	X
		SCREW	P.3x10	55100159	4	X

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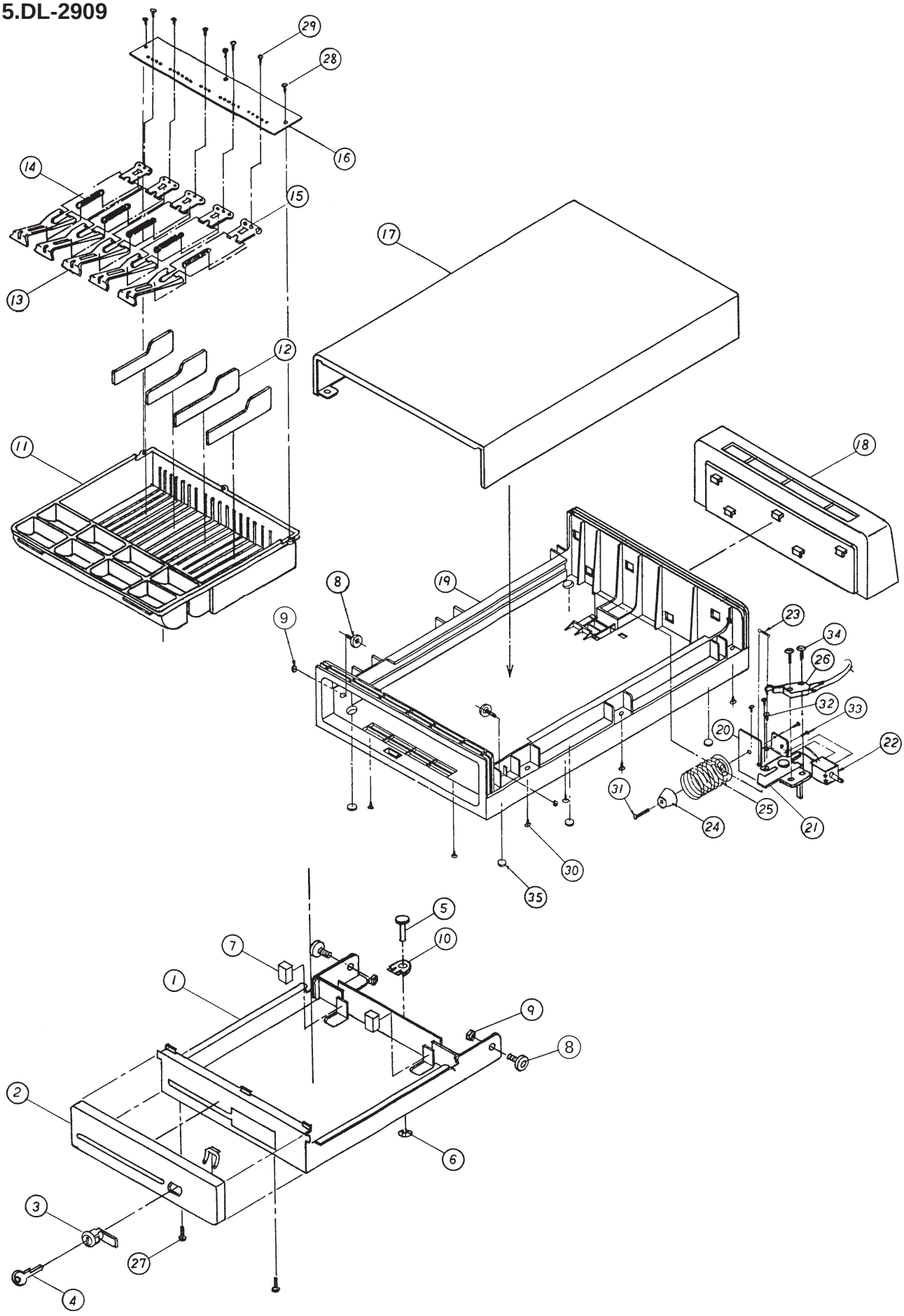
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Item	Code No.	Parts Name		Specification	Q	R
20	1904 8747	METAL/DRAWER SOLENOID	EBM-0946	CD050004	1	C
21		SET/LATCH	EBM-0453(comes with above parts)	set	1	-
23	1904 8760	SPRING	EAM-0118A	CD060002	1	X
22	1904 8748	SOLENOID ASSY	EAA-1877A	CD110012	1	A
33		SCREW	P.3X6 SW	CD100009	2	X
25	1904 8749	SPRING/STOPPER	EBM-0366	CD060004	1	X
24	1904 8750	RUBBER/STOPPER	EAA-1135	CD020004	1	X
31		SCREW	S-TITE TP4X16	CD100002	1	X
26	1904 8764	SWITCH/MICRO	VX-014-1A3	CD120001	1	C
34		SCREW	P3X15 SW	CD100012	2	X
10		HOLDER/SWITCH	TCE-01	CD420001	1	X
8	1904 8752	ROLLER	ER-19	CD030002	4	A
9		NUT	M6	CD040003	1	X
5		AXLE	EAM-0093	CD380001	1	X
6		E RING	EAA-1018	CD390001	1	X
7		URETHANE	EAA-1019	CD230002	2	X
3	1904 8753	CAM LOCK B	EBM-0306	CD370001	1	A
4		CAM LOCK KEY		set	1	-
1		BASE DRAWER	EDM-0913	CD580003	1	X
2		COVER/FRONT	EDM-0914 No. 345	CD580004	1	X
18		OPTION DRAWER	EDM-0929 No. 345	CD580005	1	X
27		SCREW	S-TITE 3x6	CD100011	2	X
		SHEET/INSULATION	90x30x0.2t	CD230003	1	X
19		HOUSING/DRAWER	EDM-0655 No. 345	CD010026	1	X
		CHANGE CORE	EBM-0953		1	X
35		FOOT/RUBBER	ø15x11 (EAA-0998)	CD020003	4	X
32		SCREW	T.P(P TITE)M4x9.4	CD100015	3	X
11	1904 8754	TRAY/BILL COIN	EDM-0298 BLACK	CD400001	1	A
12	1904 8755	PARTITION PLATE M	EDM-0296 BLACK	CD320005	4	A
13	1904 8756	STOPPER/BILL	EBM-0085 BLACK	CD330001	5	A
15	1904 8757	PIECE/ARM FITTING	EAM-0092	CD340001	5	X
14	1904 8758	SPRING/ARM	EAM-0601	CD060006	5	A
16		BASE PLATE M	EBM-0302	CD350003	1	X
29		SCREW	S-TITE 3x6	CD100011	5	X
28		SCREW	PTT-P.3x8	CD100008	3	X
17		PLATE/UPPER	EBM-1754 No. 345	CD200060	1	X
30		SCREW	S-TITE 3x8 (BIND)	CD100005	6	X
		CLAMP/CARD		CD260001	1	X

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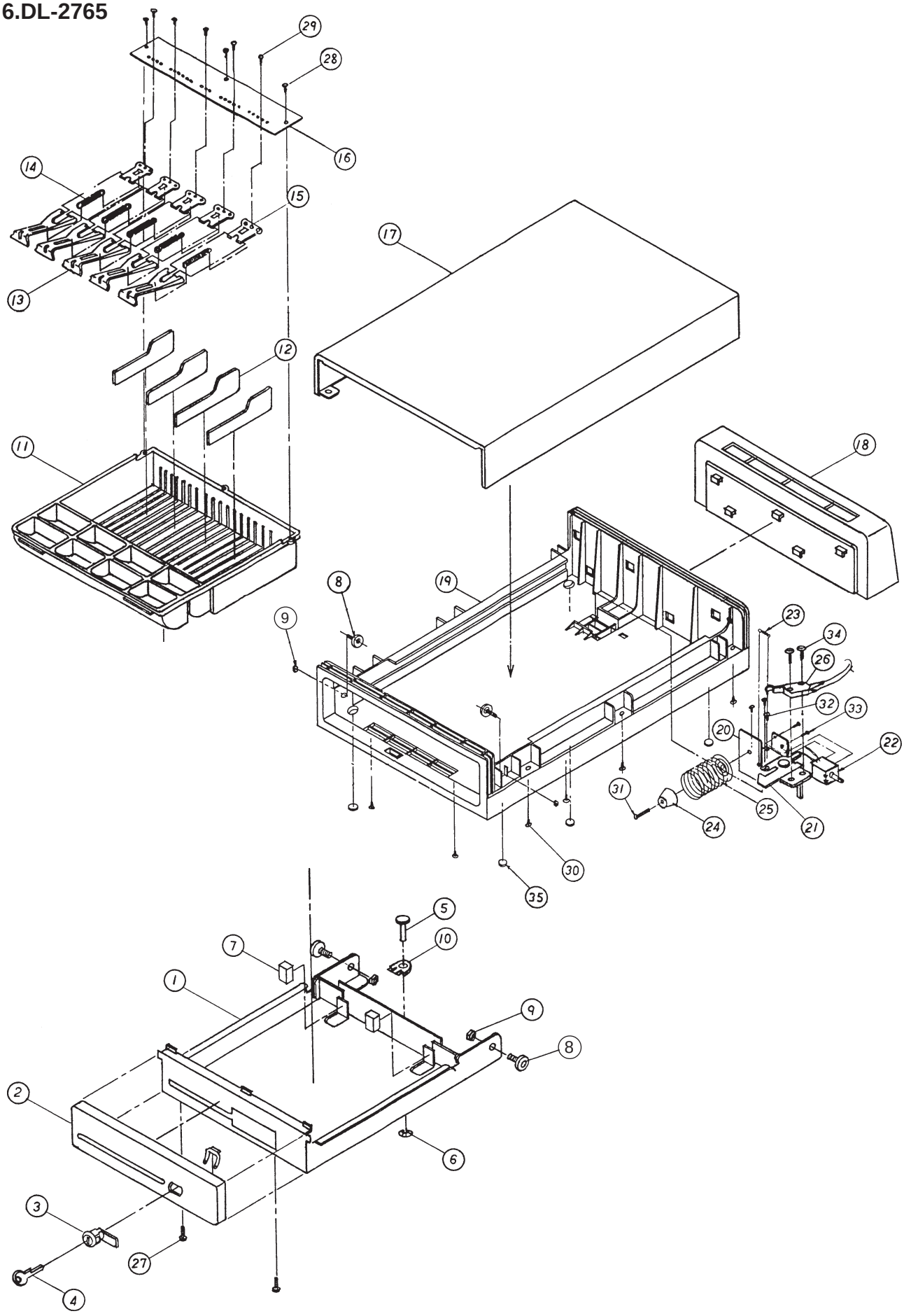
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DL-2765(DM47-4/8)

Item	Code No.	Parts Name		Specification	Q	R
20	1904 8747	METAL/DRAWER SOLENOID	EBM-0496	CD050004	1	C
21		SET/LATCH	EBM-0453(comes with above parts)	set	1	-
23	1904 8760	SPRING	EAM-0118A	CD060002	1	X
22	1904 8748	SOLENOID ASSY	EAA-1877A	CD110012	1	A
33		SCREW	P.3x6 SW	CD100009	2	X
25	1904 8749	SPRING/STOPPER	EBM-0366	CD060004	1	X
24	1904 8750	RUBBER/STOPPER	EAA-1135	CD020004	1	X
31		SCREW	S-TITE TP4x16	CD100002	1	X
26	1904 8764	SWITCH/MICRO	VX-014-1A3	CD120001	1	C
34		SCREW	P3x15 SW	CD100012	2	X
10		HOLDER/SWITCH	TCE-01	CD420001	1	X
8	1904 8752	ROLLER	ER-19	CD030002	4	A
9		NUT	M6	CD040003	4	X
5		AXLE	EAM-0093	CD380001	1	X
6		E RING	EAA-1018	CD390001	1	X
7		URETHANE	EAA-1019	CD230002	2	X
3	1904 8753	CAM LOCK B	EBM-0306	CD370001	1	A
4		CAM LOCK KEY		set	1	-
1		BASE DRAWER	EDM-0913	CD580003	1	X
2		COVER/FRONT	EDM-0914 No. 345	CD580004	1	X
18		OPTION DRAWER	EDM-0929 No. 345	CD580005	1	X
27		SCREW	S-TITE 3x6	CD100011	2	X
		SHEET/INSULATION	90x30x0.2t	CD230003	1	X
19		HOUSING/DRAWER	EDM-0655 No. 345	CD010026	1	X
		CHANGE CORE	EBM-0953		1	X
35		FOOT/RUBBER	ø15x11 (EAA-0998)	CD020003	4	X
32		SCREW	T.P(P TITE)M4x9.4(EAM-0536)	CD100015	3	X
11	1904 8754	TRAY/BILL COIN	EDM-0298 BLACK	CD400001	1	A
12	1904 8755	PARTITION PLATE M	EDM-0296 BLACK	CD320005	3	A
13	1904 8756	STOPPER/BILL	EBM-0085 BLACK	CD330001	4	A
15	1904 8757	PIECE/ARM FITTING	EAM-0092	CD340001	4	X
14	1904 8758	SPRING/ARM	EAM-0601	CD060006	4	A
16		BASE PLATE M	EBM-0302	CD350003	1	X
29		SCREW	S TITE 3x6	CD100011	4	X
28		SCREW	PTT-P.3x8	CD100008	3	X
17		PLATE/UPPER	EBM-1754 No. 345	CD200060	1	X
30		SCREW	S-TITE 3x8(BIND)	CD100005	6	X
		CLAMP/CORD		CD260001	1	X

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